WOOD

Combined With

WOOD PRODUCTS

September, 1951

W.C.L.A's Simpson

See Page 21 – WOOD SALUTES

Champlin Boosts Output

Hoisting lumber on the new unloading hoist at W.H. Champlin operation. Page 28

Pre-bleached veneers

New method for lighter veneers. Page 27

Job Evaluation

Wage freezes and government regulations make employee evaluation a must. Page 33

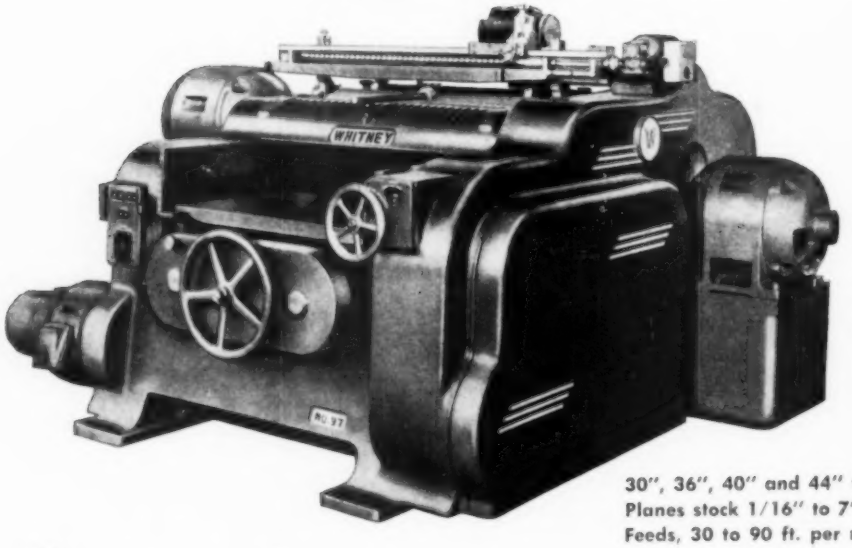
See these features

- Gluing Responsibility
- Productive Maintenance
- FPRS Section—Page 47
- Wood Puzzlers
- Trends
- New Products
- Woodictionary

A Vance Publication

The National Management and News Magazine of the Forest Products Industry.

Whitney 97 Double Surfacer



30", 36", 40" and 44" widths
Planes stock 1/16" to 7" thick
Feeds, 30 to 90 ft. per minute

For *Uniformly* High Quality Production

What price do you pay when you stretch the useful life of a planer beyond its ability to produce good work? Comparison of costs will prove that slow production, poor planing and waste more than offset the price of new equipment.

The Whitney No. 97 Double Surfacer maintains a uniformly high quality of planing day after day. Its accuracy at fast feeds means production schedules are met, less sanding is required, less handling, larger output and lower costs.

The sturdy design and precision construction of the No. 97 resulting from Whitney's more than 100 years experience building fine planers assures you dependable planer performance and satisfaction. Investigate the Whitney No. 97 today. Write for Bulletin M9.

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PLANERS • SHAPERS • VARIETY SAWS • MORTISERS • BACK KNIFE LATHES

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EKSTROM CARLSON

HI-SPEED MOULDERS

ARE *Producing* IN

WOODWORKING PLANTS

Busy shops all over the country are getting out more and better work every day with ECCo Hi-Speed Moulders. Look at the *outstanding features* of this modern machine — independently operated spindles with pre-selectable speeds — speed selection *without* use of a frequency changer — cutterheads jointed at high spindle speeds — infinitely variable feed rate from 25 to 225 feet per minute without stopping the machine — increased production — reduced knife cost — reduced head cost — and lower operating costs. This performance is backed by alert, experienced EKSTROM CARLSON SERVICE that insures maximum efficiency. If you want to see ECCo Hi-Speed Moulders in action, let us send you a list of the installations nearest you. For full specifications, description, and data on models available, write for new Bulletin M200.

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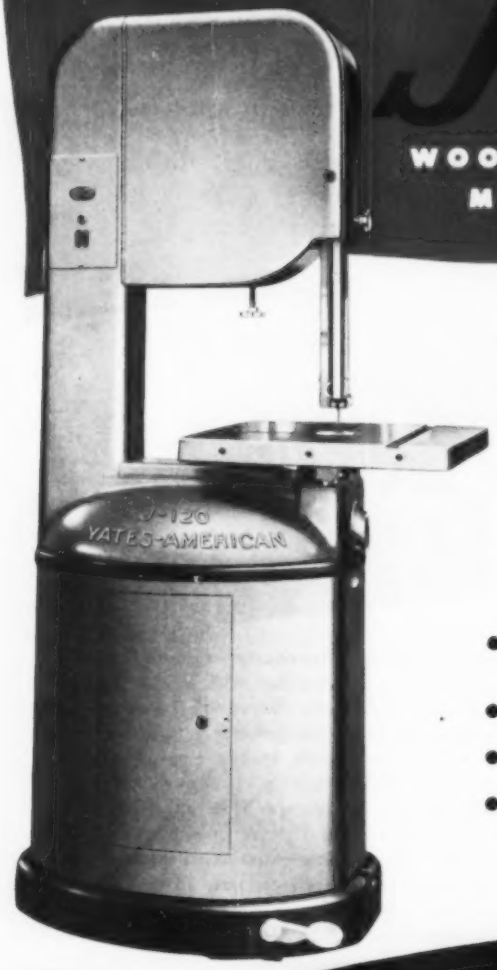
"the best that money will buy!"

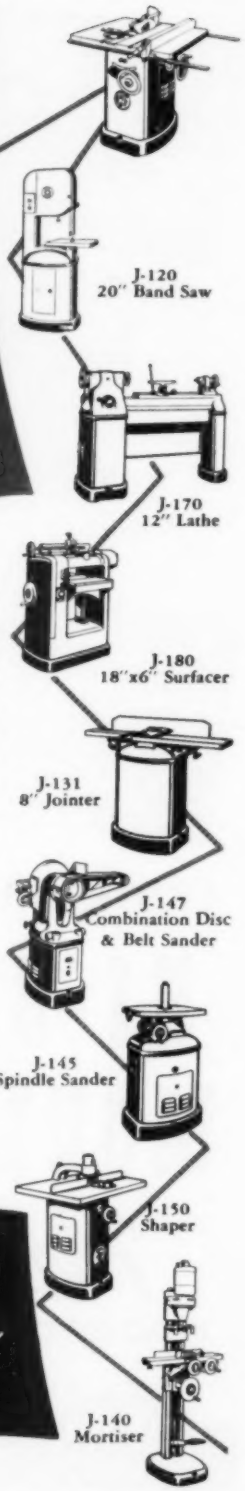
J-LINE

WOODWORKING MACHINES



Yes, "the best that money will buy" . . . is the acclaim given J-LINE woodworking machines by schools and light industry the country over! Send for complete information on this modernly designed, quality line . . . engineered and built by Yates-American . . . leaders in woodworking machinery since 1883.

- COMPLETELY EQUIPPED READY TO INSTALL
- DESIGNED FOR SAFETY
- STURDILY BUILT
- EASY TO OPERATE AND MAINTAIN



Yates-American

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WOOD

COMBINED WITH

WOOD PRODUCTS

Volume 56 No. 9

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It isn't only engineers who harness nature's forces. How about the girdle manufacturers, for instance.

• • •

September and the new Sears Roebuck catalog is out. But the paper is just as soft and absorbent.

• • •

Money grows on trees–for you–when you take advantage of MAUK's know how in the lumber business.

You tell us what–the size and grade specifications, the end uses and conditions under which each item will be used and we'll take care of the "how".

MAUK knows its mills and how to get the most usable stock, best suited to your precise requirements, into each carload of lumber to you from us.

Don't get waste. Get MAUK for your money.

• • •

Someone wants to change the traditional sailors' uniform–says those thirteen buttons are foolish. O.K. so we go modern and make it thirteen zippers. That'd probably make for more openings in the service.

• • •

Simple Celia says she read about a horse that was scratched in the Preakness, and my, that must be painful.

• • •

Mauk Seattle Lumber Co.
Seattle 1, Washington

The C. A. Mauk Lumber Co.
Toledo, Ohio

Industry Trends

This Month's Challenge

Fifty-seven percent or 345 million acres of our U. S. Forest lands are in the hands of small woodlot owners. On these acres are growing some of the best mature timber in our country today. A few farsighted lumber manufacturers whose own timberlands are on a sustained yield basis have augmented their timber stands by initiating sound sustained yield programs among woodlot owners within economical hauling distance from their mills. These woodlots are supervised by the manufacturer's foresters who manage the small owners woodlot forests. Why not make such programs industry-wide and thereby increase our dwindling supplies of top-grade lumber?

RESEARCH

Hybrid Trees

New kinds of trees are now in the making. The Forest Products Industry is not satisfied with our old standby's as they grow too slowly, have too many branches and succumb too easily to disease and drought. During the 1940's by careful selection and crossbreeding the Institute of Forest Genetics of the U. S. Forest Service in Placerville, California produced 12 new varieties of pines alone which do not have the above failings. The U. S. Forest Service says: "Soon there will be hybrid trees that may grow to harvesting size in one-half to one third the time required for a good non-hybrid timber tree. Our forests might then be made to produce twice or three times the volume of lumber." Here is indeed a remarkable development which may soon add tremendously to our timber wealth.

Pre-bleached Veneers

On page 27 you will find an article announcing the latest research development–Pre-bleached Veneers. Here is a new wood product that opens new horizons for furniture, cabinet and panel manufacturers. It is described as "various face veneers in which the coloring matter in the wood has been neutralized by a special process without affecting the structure of the wood in any way."

FURNITURE

Inventories, Shipments, Orders

"Shipments by furniture producers for the period to August 1, 1951 surpass those of record-breaking 1950 by around 20 percent, and are about 40 percent greater than 1949" according to General Lawrence H. Whiting, President of the American Furniture Mart. "At the same time, in competing with the scare-buying boom of the third quarter of 1950, figures will now of necessity decrease from here on out because comparisons will sag."

Congressional revision of Regulation W revising down payments on furniture and TV sets to 15% and 18 months to pay gives new life to these industries. Dealer inventories reported abnormally high for the past three months have decreased, and by the end of August should be nearly normal. During the past six weeks, dealer fill in orders for furniture has been increasing. All points to an exceptional good last quarter.

PRODUCTION

Defense Orders

Few woodworking plants have received U. S. defense orders of any size. The outlook for the immediate future does not appear very bright at the present time.

Wood Containers

The impact of military and defense supporting programs was keenly felt by the U. S. wood container industry. Practically all sectors of the wood container business showed an increase over 1950 production in the first quarter, and it is estimated that 1951 production will surpass 1950 production by a large percentage. In view of the heavy demand and order backlog for wood containers, the immediate outlook indicates a high level of business activity with shortages of raw materials being the major obstacles to near capacity output. The CMP, as it is placed in effect, should assist the general container supply situation by providing a more effective method of distributing the supply of basic materials for more essential uses. See page 82 for containers and packages detailed report.

Forest Harvest

Surpassing last year's timber harvest by 58 percent, 261½ million board feet were cut from national forests in Michigan, Wisconsin, Minnesota, Missouri, Illinois, Indiana and Ohio for the 12 month period ending June 30, 1951. This tops the previous record set in 1947 by almost 70 million bd. ft. It was divided up as follows: Sawtimber and peelers, 25%; Pulpwood and bolts, 72%; Piece products such as posts, poles, piling, 3%.

PLYWOOD

New Military Set-Aside Order

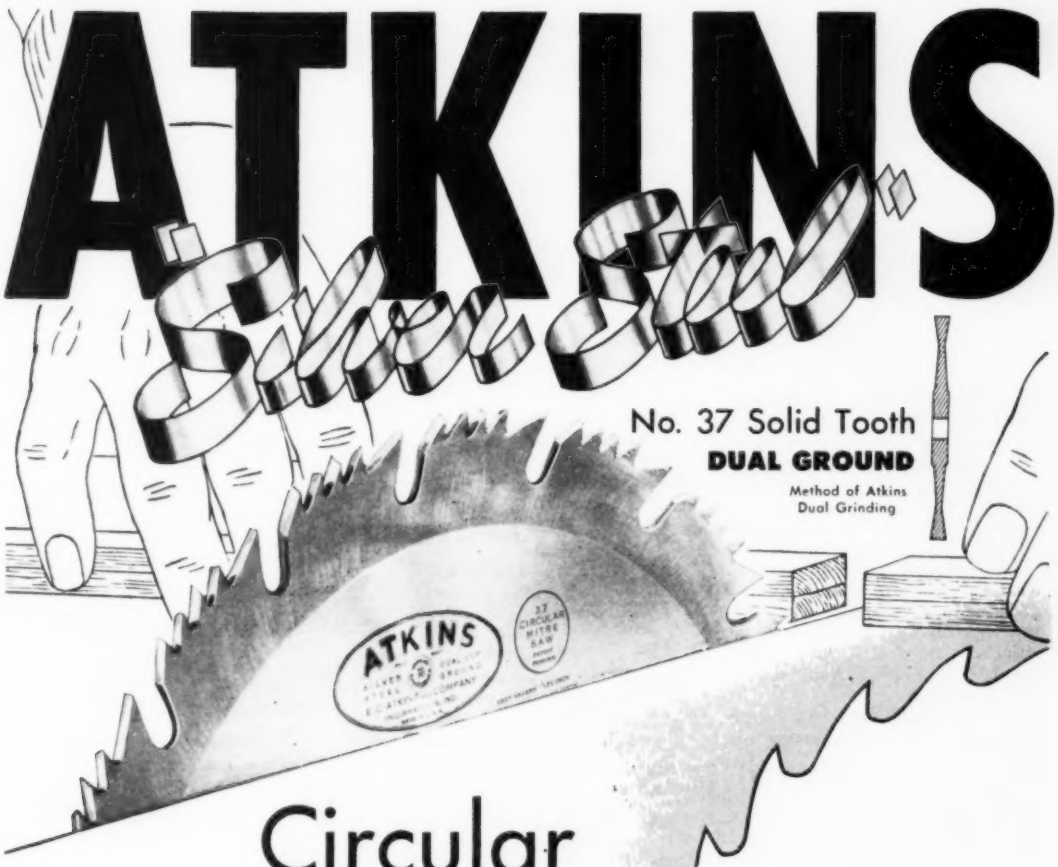
In a new move to meet growing military requirements for plywood, the National Production Authority has ordered softwood plywood manufacturers to set aside up to 30 per cent of their production for DO rated orders. The new set-aside order will affect September production and provides that:

1. Manufacturers increase their reserve to supply defense rated business from the present 20 per cent to 25 per cent during September and October.
2. Manufacturers boost this set-aside to 30 per cent October 31st and thereafter.
3. A higher proportion of exterior plywood with waterproof bond be held for rated orders than the overall set-aside would indicate.

Actually, the order provides that individual manufacturers of exterior panels–used in the defense effort for auxiliary surface craft, barracks, field buildings and other outdoor uses–furnish 50 percent of their reserve in such panels.

(Continued on page 8)

ATKINS "Silver Steel"



Circular Saws

for every Woodworking Need

As every woodworker knows, the basis of a good saw is *steel*. And Atkins *"Silver Steel"* circular saws are famous throughout the world for standing up on the job, for staying sharp longer, for turning out *more* work at *less* cost. It is because *"Silver Steel"* saws are made of the finest, toughest steel ever compounded for sawing purposes. In addition, every manufacturing step—toothing, heat treating, tempering, perfect tensioning and accurate grinding—is performed by the most modern machines and the most highly skilled sawsmiths operating today!

ATKINS SMOOTH-END TRIMMER

True taper grinding—correct side clearance to prevent gumming and burning. Genuine *"Silver Steel"* quality through and through!

ATKINS
14"-16" diameter
TOOTH RIP
for DIEHL
MACHINES

USE—DON'T ABUSE—
GOOD TOOLS!

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Sales Offices: Atlanta • Chicago • Portland • New York

AAA TRADE MARK ATKINS "ATKINS ALWAYS AHEAD"

TRENDS

(Continued from page 6)

Plywood for concrete forms and other top grades of interior type panels for indoor applications are affected by a similar 40 percent provision applying to those manufacturers who do not have facilities for making exterior plywood.

HOUSING

Low-Cost Homes Shortage

Another shortage of low-cost housing may be in the making over the next few years, a study by one of the nation's leading mortgage financing organizations revealed recently.

So far in 1951 both new family formation–as measured by marriage licenses–and births are running far ahead of the same period of 1950, and far ahead of new low-cost housing which can be made available during 1951, according to an officer of Investors Diversified Service, Inc., of Minneapolis.

Steeper cuts in total new housing starts–possible 30 or 40 percent–may be expected for the last six months of this year, particularly as material shortages develop in the face of defense requirements, it was said.

Housing Starts

Here's the record of housing starts both private and public for the first six months of 1951 compared with 1950.

	1950	1951
January	78,700	85,900
February	82,900	80,600
March	117,300	93,800
April	133,400	88,000
May	149,100	97,000
June	144,300	130,000
Total	705,700	575,300

Total building expenditures during the first six months of '51 was 16% over comparable '50 amount, to a record $14 billion.

MARKETS

Concentration Yards

If you follow the weekly releases of The Lumberman's Redbook, you have perhaps noticed the increasing number of firms listed as Concentration Yards. These establishments in the main, serve the so-called "Peckwood" sawmill operators. They grade, dry, remanufacture the lumber into salable products and then market them. The 1947 Census of Manufacturers lists 34,070 operators of sawmills producing under 200M bd. ft. per year. Most of their logs come from woodlots. These marginal operators with relatively poor equipment, untrained sawyers and thick circular saws have been great wastrels of our forests. Since the war, it has been increasingly difficult for them to market their badly manufactured green lumber. The concentration yard and many larger and better equipped manufacturers of lumber have started an important industry trend which if it continues to grow may soon make the "Peckerwood" a credit to the industry and increase our supply of top grade lumber.

Venetian Blind Slats

From a 100% use of wood in Venetian blind slats to less than 5% today is the record. Today venetian blind manufacturers are worried about their metal supplies and our mailbag is bringing in letters seeking sources of supply for wood slats. With our new technological developments such as impregs, compregs, laminates, plasticized surfaces, etc.,

(Continued on page 10)

Hardwood Furniture Dimension

Solid and glued . . .

Cut to size . . .

Run to detail.

Uniform high quality

All commercial species

★

Mixed Cars for the Building Trades

Bradley Brand Hardwood Flooring in Straight-line Standard Strip and Unit Wood Blocks in Oak, Beech, Pecan; Random Width Oak Plank . . . each in finished or unfinished stock. Oak thresholds, stair treads, risers, glued-up panels. Arkansas Soft Pine trim, mouldings, finish and yard stock.

Call our nearest representative or address:

BRADLEY LUMBER COMPANY *of Arkansas*

BRADLEY BRAND

WARREN, ARKANSAS

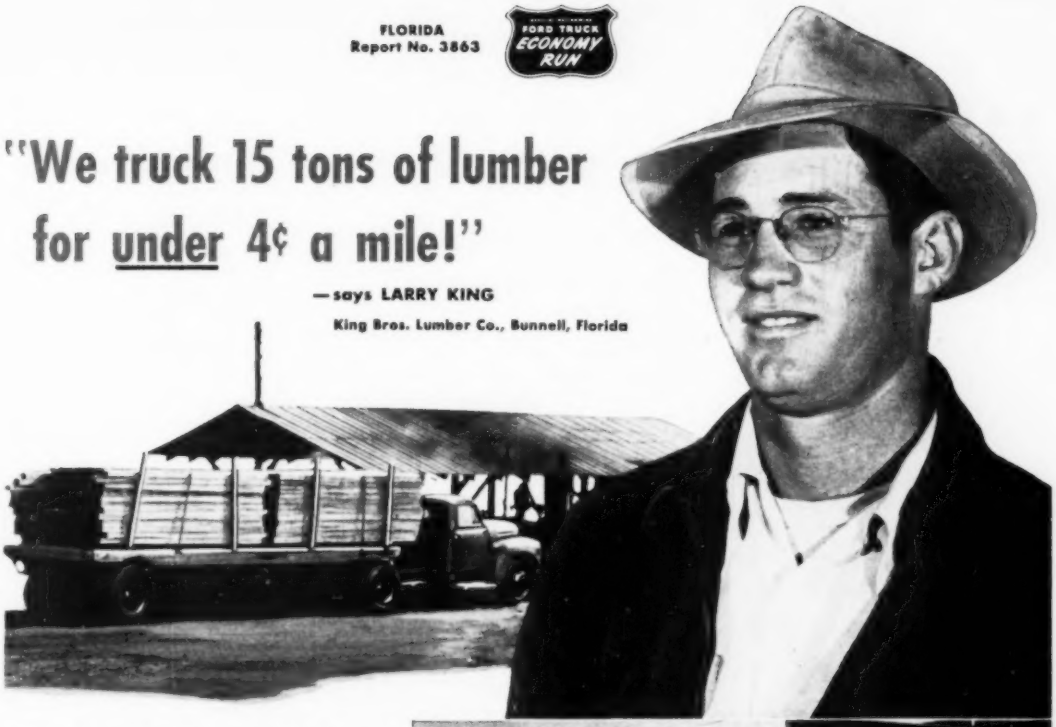
FLORIDA
Report No. 3863

FORD TRUCK ECONOMY RUN

"We truck 15 tons of lumber for under 4¢ a mile!"

—says LARRY KING

King Bros. Lumber Co., Bunnell, Florida



"For low cost operation, we'll put our Fords with POWER PILOT up against any other trucks," says Larry King.

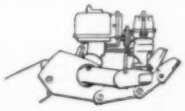
King Bros. Lumber Co. owns eight Ford Trucks . . . uses five of them to run heavy loads of lumber to Miami, 300 miles away. Mr. King says, "The 1950 Ford F-8 BIG JOB, equipped with POWER PILOT, which we entered in the six-month Economy Run traveled 34,913 miles. Yet with loads of over 15 tons the total expense for gas, oil, maintenance, with no repairs, amounted to only $1,338.95—that's a thrifty running cost of only 3.84 cents a mile!"

Like others who rely on Ford for low running costs, King is sold on the periodic, money-saving service he got from his Ford Dealer. For more facts on the trucks that last longer *and* save you money every mile—mail coupon below.

This 1951 145-h.p. Ford F-8 BIG JOB, like King's truck, has power reserves that lumbermen really appreciate! Two fine cabs—the 5-STAR, or, at added cost, the 5-STAR EXTRA—give you better efficiency, safety and driving ease. Choice of 5 wheelbases. Full air brakes optional at extra cost. Gross train weight rating: 39,000 lbs. Ford builds over 180 different truck models—all with the POWER PILOT—to help solve your hauling problems.

Availability of equipment, accessories and trim as illustrated is dependent on material supply conditions.

POWER PILOT HELPS LUMBERMEN HOLD DOWN HAULING COSTS



The Ford Truck Power Pilot is a simpler, fully-proven way of getting the most power from the least gas. It is designed to synchronize firing *twice* as accurately.

You can use regular gas . . . you get no-knock performance. Only Ford in the low-price field gives you Power Pilot Economy.

FORD TRUCKING COSTS LESS

because FORD TRUCKS LAST LONGER!

Using latest registration data on 7,318,000 trucks, life insurance experts prove Ford Trucks last longer!

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Send me without charge or obligation, detail specifications on Ford Trucks for 1951.

Full Line ☐ **Heavy Duty Models** ☐
Light Models ☐ **Extra Heavy Duty Models** ☐

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(Please print plainly)

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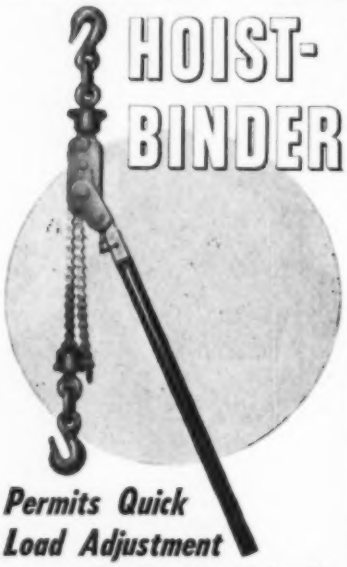
NEW
RATCHET-TYPE HOIST-BINDER



Permits Quick Load Adjustment ... Continuous Take-Up

Your load is never "off the hook" when you boom it with a new Coffing Hoist-Binder. Operating on the ratchet hoist principle, the Hoist-Binder pulls load chain to any tension up to 3,000 lb. Takes up or slacks off 20½ in. (or more with longer chain) . . . provides ample length of pull to tighten down springy loads or re-secure those that have settled—without releasing hooks for another bite.

Entire operation — tightening and releasing — is controlled by the handle alone. No buttons to push, no levers to turn. Handle is removable, and when removed, binder becomes a tamper-proof lock. Ratchet and pawl construction holds securely in any position . . . prevents handle from flying up when released . . . permits full strokes for rapid take-up, half strokes for minute adjustment . . . free chains when not under load. The handle acts as a "safety valve," since it will bend before the binder is overloaded beyond safe limits.

Find out more about the binder that gives you extra convenience and safety.

Write for Bulletin WD9HB.

COFFING HOIST Company

DANVILLE, ILLINOIS

Quik-Lift Electric Hoists • Hoff-Alls
Safety-Pull Ratchet Lever Hoists
Mighty-Midget Pullers • Spur-Geared Hoists
Differential Chain Hoists • I-Beam Trolleys

TRENDS

(Continued from page 8)

we have an excellent chance to regain this lost market. Wood makes a more durable, better looking slat, and takes finishes that better fit the decorative schemes in the home than metal.

MACHINERY

Use of Woodworking Machinery

A recent WOOD & WOOD PRODUCTS survey among all sectors of the industry discloses some interesting information regarding the extent of use of various types of woodworking machinery in the industry. It is well worth a few minutes study.

Type of Equipment	% of use
1. Cutoff saws	74.4
2. Planers & surfacers	74.3
3. Ripsaws	66.9
4. Sanding equipment	65.1
5. Bandsaws	58.6
6. Jointers	55.1
7. Saw filing equipment	55.1
8. Knife grinding equipment	52.3
9. Moulders	51.4
10. Boring equipment	51.4
11. Swing cutoff saws	48.5
12. Trim saws	46.8
13. Dry Kilns	42.2
14. Glue spreaders	37.6
15. Band resaws	36.7
16. Tenoners	36.7
17. Routers	31.2
18. Edgers	31.2
19. Wood lathes	31.2
20. Plywood presses	28.1
21. Veneer clippers	27.9
22. Mortisers	25.7
23. Clamp carriers	23.8
24. Matchers	20.2
25. Veneer jointers	20.2
26. Glue mixers	19.2
27. Veneer splicers	19.2
28. Variety saws	19.1
29. Jig saws	19.1
30. Mitre saws	17.4
31. Bench saws	17.4
32. Veneer lathes	16.5
33. Nailing machines	15.6
34. Veneer dryers	13.7
35. H. F. Gluing Equipment	8.2

LUMBER

Production, Prices

The overall lumber production for 1951 is expected to drop about 3 percent under the 1950 footage, NPA lumber experts estimated recently. Total plywood production (both hardwood and softwood) for this year is

(Continued on page 12)

KILN DRIED LUMBER

FOR

immediate shipment

EITHER TRUCKLOAD OR CARLOAD LOTS

Northern Hardwoods

Basswood	4/4 to 6/4
Birch	4/4 to 8/4
Hard Maple	4/4 to 8/4
Soft Elm	4/4 to 12/4

Appalachian Hardwoods

Beech	5/8 to 10/4
Red Oak	5/8 to 8/4
White Oak	5/8 to 8/4

Southern Hardwoods

Ash	4/4 to 8/4
Basswood	4/4 to 6/4
Hackberry	4/4,to 5/4
Sap Gum	5/8 to 8/4
Tupelo Gum	4/4 to 8/4
Red Gum	4/4
Soft Maple	4/4 to 12/4
Sycamore	5/8, to 8/4
Poplar	3/4 to 12/4
Hickory (AD)	8/4
Cypress (AD)	4/4

Mahogany

Honduras	3/4 to 12/4

Walnut

Steamed	5/8 to 8/4

Pine

Parana (Brazilian)	4/4, 5/4

The above hardwoods are in No. 1 Com. & Better Grades

and generally are available in higher grades.

Your inquiry will receive prompt and courteous attention

MONARCH HARDWOOD LUMBER CO.

3304 W. Belmont Ave.

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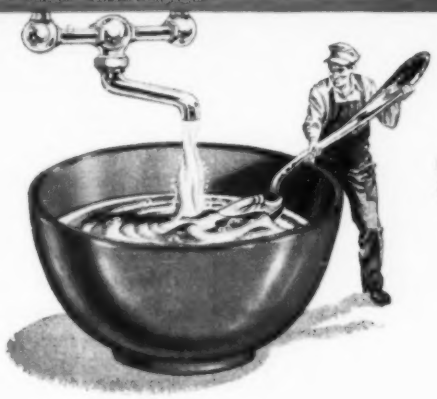

No Mixing — Simply Stir into water and use.

NO-MIX TAPELESS ADHESIVE SPLICES VENEERS 30% FASTER

Now you can bond veneers permanently, invisibly, in 30% less time—*without* mixing or taping. Simply stir UFORMITE JS-508 one-component adhesive into water and apply at the jointer or splicer.

No other veneer-splicing adhesive offers so many time-saving advantages. There's no guesswork: UFORMITE is pre-catalyzed and pre-lubricated. Long pot-life (8 to 12 hours at 75° F.) lets you prepare the whole day's batch at one time. Wide assembly time (10 minutes to 5 days) permits week-end storage of spread veneers. And under normal conditions, storage life is over a year.

Send for free technical data. Manufacturers are splicing 70,000 miles of veneer per month with UFORMITE JS-508. For fast, easy production on conventional or high-frequency splicers, get full details of dust-free, powdered UFORMITE JS-508 adhesive today. No obligation.

CHEMICALS FOR INDUSTRY

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THE RESINOUS PRODUCTS DIVISION

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See how
MOISTURE
REGISTER
saves you
...money!

MOISTURE REGISTER instruments

- Cut down costly finished product rejects.
- Make sure your lumber meets moisture specifications for grade.
- Reduce customers complaints and insure consistent production quality.
- Save man hours because Moisture Register tests in seconds. Oven tests take hours.
- Save freight costs. You don't pay for excess moisture.
- Save on overhead. Wet lumber increases tool maintenance.

Moisture Register Model K2D in use at Mansion House Furniture Company, Los Angeles.

Moisture Register instruments are simple to use. They show you when wood is exactly right for most efficient cutting, bonding, fitting and finishing.

Models priced from $60 to $148.50 both radio frequency and needle type. Test 80 wood varieties, wood products, wood waste and plaster, down to 0% in three seconds or less. Rugged, portable. One year guarantee. Write for complete information on Moisture Register instruments specially designed for the textile, leather, paper, wood and wood products industries.

10-day free trial on any model. Write today, outlining your requirements. No obligation.

ELECTRONIC MOISTURE REGISTER

Mfg. by Moisture Register Co.
1510 W. Chestnut St., Alhambra, Calif.

TRENDS

(Continued from page 10)

figured at 4.3 billion board feet—a sharp rise from last year's 3.6 billion.

While current lumber production continues at slightly higher levels than in 1950, yet the general tone of the market still indicates the general downward trend noted a month ago. If, however, expected government defense purchasing begins to materialize within the next few weeks, the heavy inventories accumulated during the early months of the year will soon level to the point where buying will increase sufficiently to overcome the current slackening of sales.

A quick picture of the first six months production story of some important sectors of the industry as compared to 1950:

Sawn Products in Thousand Ft. B M	1951 First 6 Months	1950 First 6 Months
Cal. Redwood	255,181	253,869
Southern Hardwoods	2,413,000	2,188,000
Western Pine	3,586,000	3,305,000
Southern Pine	4,490,000	4,489,000
Mahogany Production in USA plus imports. First 3 Months Only	16,274	11,320
Douglas Fir Plywood	1,500,000	1,230,000
Oak Flooring First 5 mo. Only	445,060	382,455
Prefabricated Homes	25,662 Houses	19,954 Houses

The above production figures were compiled from the following forest products organizations:

California Redwood Association
Southern Hardwood Lumber Association
Western Pine Association
Southern Pine Association
Mahogany Association
Douglas Fir Plywood Association
National Oak Flooring Manufacturers Association
Prefabricated Home Manufacturers Institute

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the modern methods of packing and loading? Of course, we mean pallettizing your products.

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We can also furnish you cut-to-length crating in Pine and Hardwoods and other industrial stock.

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P. O. Box 2896 Tel. 8115
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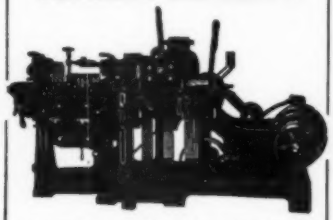
HERMANCE NO. 60
HIGHSPEED BALL
BEARING MOULDER



A modern machine for the Rapid and Accurate production of Small Mouldings or for four side planing. Ideal for detail work. Quick to set up. High spindle speed, 5400 RPM, means fine one-knife finish at fast feeds. Handles stock from the smallest to 6" wide and 3" thick; bed drops 16" for running wide stock on edge. For fast feeds it can be furnished with four knife heads, knife jointers, electric grinder and automatic hopper feed. The low initial cost and many advantages of this machine will appeal to you.

Write for Detailed Bulletin

HERMANCE
MACHINE COMPANY
Williamsport, Pa.

Military Specifications for glues and plywood

☆☆☆☆ recommended materials to comply

No. of Specification Date of Latest Issue	TITLE	MATERIALS TO COMPLY		
AN-G-8 **25 April 1942**	Glues, cold-setting resin	Type I	CASCAMITE 66M with M-42 (3.5 parts)	No extension
			CASCAMITE 151 with FM-50 (20 parts)	No extension
			CASCAMITE RF-88 with FM-120 (15 parts)	No extension
		Type II	CASCAMITE 12	No extension
			CASCAMITE 14	No extension
		Type III	CASCO-RESIN 5 with FM-62 (15 parts)	No extension
			CASCO-RESIN 150 with FM-142F (12-15 parts)	No extension
			CASCO-RESIN 150 with FM-108 (25 parts)	No extension
AN-P-43 **31 March 1943**	Plywood, aircraft, molded (fluid pressure)	Glues to meet JAN-A-397 or MIL-A-5534		
CG-456 **8 July 1941**	Glue, casein type, water resistant	CASCO Grade A, Aircraft Joint P, 350, 231-P		
CG-496 **17 June 1946**	Glue, resin type (liquid and powder)	Same as AN-G-8		
MIL-A-397A **6 April 1951**	Adhesive, room-temp. and intermediate-temp.-setting resin (phenol, resorcinol and melamine base)	Type I	Class I — CASCOPHEN RS-240M	
			Class I or II—CASCOPHEN RS-216, RS-224	
		Type II	Class I or II—same as Type I, also CASCOPHEN LT-67, LT-68	
JAN-P-139 **22 August 1946**	Packaging and packing for overseas shipment. Plywood, container grade	Type A	CASCOPHEN HP-402	No extension
			CASCOPHEN HP-403	No extension
		Type B	CASCAMITE 66M (cold)	60 parts flour
			CASCAMITE 66M (hot)	115 parts flour, 5.8 penta.*
			CASCAMITE 151 (cold)	60 parts flour
			CASCAMITE 151 (hot)	135 parts flour, 6.75 penta.*
			CASCO-RESIN 5 (cold)	50 parts flour, 2.5 penta.*
			CASCO-RESIN 5 (hot)	100 parts flour, 5 penta.*
			CASCO-RESIN 30 (cold)	30 parts flour
			CASCO-RESIN 30 (hot)	68 parts flour, 5 penta.*
			CASCOPHEN HP-402, 403	100 parts flour, 5 penta.*
			For veneers over ⅛" thick, reduce extender 33%	*pentachlorophenol
MIL-A-5534 **9 January 1950** ***Supersedes:*** **AN-A-43** **USAF-14139**	Adhesive, high temperature-setting resin (phenol, resorcinol and melamine base)	Cond. A.	CASCOPHEN RS-216 with FM-60M (20 parts)	11.5 pts. Glufil
			CASCOPHEN RS-240M with FM-124(20 parts)	15 pts. Glufil
			CASCOPHEN RS-224 with FM-128 (25 parts)	15 pts. Glufil
			CASCOPHEN LT-67 with H-23 (6 parts)	20 pts. Glufil
		Cond. B.	CASCOPHEN HP-403 hot press	30 pts. Glufil
			CASCOPHEN HP-402 with H-21 (4 parts)	No extension
MIL-P-6070 **29 March 1950** ***Supersedes:* AN-P-69a**	Plywood and veneer Aircraft flat panel	Glues to meet AN-A-45 (MIL-A-5534)		
CS35-49 **1 December 1949** ***Supersedes:* CS35-47**	Hardwood plywood	Tech. or Type I	Any CASCOPHEN	No extension
		Type II	CASCO-RESIN 5 cold press	100 parts flour
			CASCO-RESIN 5 hot press	125 parts flour
			CASCAMITE 66M cold press	115 parts flour
			CASCAMITE 66M hot press	150 parts flour
			CASCAMITE 151 cold press	150 parts flour
			CASCAMITE 151 hot press	185 parts flour
			CASCO-RESIN 30 cold press	83 parts flour
			CASCO-RESIN 30 hot press	105 parts flour
			CASCO Grade A, 350, 231-P, Air Joint P, 375, S-2195	
MIL-P-66A **27 December 1949** ***Supersedes:* JAN-P-66**	Plywood, flat-panel	Hardwood plywood to meet CS35-49		

● Send for your free copy of CASCO Service Bulletin 82, "Government Procurement of Wood, Plastics and Paper Products." Lists Purchasing Offices, includes complete Specification Chart, tells how to estimate glue costs. It's part of Borden's Glue Service. Address: Dept. W-91, The Borden Company, Chemical Division, 350 Madison Avenue, New York 17, N. Y.

Borden's
CHEMICAL DIVISION

MARKETS

These prices are estimates made available by Mr. George Land, publisher of the *Hardwood Market Report*, and reflect prices as indicated in his copyrighted issue of August 18, 1951. Mr. Land's complete report is available weekly; those who want the entire list should contact him c/o Box 5716, Memphis 4, Tenn.

SOUTHERN HARDWOODS

F.O.B. mills—Texas & Louisiana area—estimate of present FOB Texas & Louisiana mill point average ceiling price sales made subsequent to January 25, 1951 to consuming trade on band-sawn Southern Hardwoods in carload quantities, random widths & lengths, rough air dried & graded in accordance with NHLA rules on inspection. Prices in dollars per M'. on straight cars of upper bracket grades premiums are frequently being paid.

ASH—FIRM TEXTURE

	FAS	No. 1C	No. 2C
4/4-in.	155	110	60
6/4-in.	168	120	65
8/4-in.	180	140	70

BASSWOOD

4/4-in.	160	135	80
6/4-in.	170	135	87
8/4-in.	180	145	90

BEECH

4/4-in.	125	100	62
6/4-in.	150	112	67
8/4-in.	167	127	72

CHERRY
Same as Appalachian

RED GUM—PLAIN

4/4-in.	210	160	70
6/4-in.	230	170	75

RED GUM—QUARTERED

4/4-in.	225	175	75
6/4-in.	250	200	90
8/4-in.	260	210	95

SAP GUM—PLAIN

	FAS	No. 1C	No. 2C
4/4-in.	125	105	
6/4-in.	155	135	
8/4-in.	160	140	

HACKBERRY

4/4-in.	110	90	65
6/4-in.	130	108	76
8/4-in.	135	110	75

HICKORY
Temporarily suspended

MAGNOLIA

4/4-in.	170	135	78
6/4-in.	185	143	87
8/4-in.	205	159	90

SOFT MAPLE—WHAD

4/4-in.	115	90	60
6/4-in.	145	120	77
8/4-in.	155	135	80

SOFT MAPLE—WHND

4/4-in.	115	90	60
6/4-in.	130	105	75
8/4-in.	135	110	80

RED OAK—PLAIN

4/4-in.	180	110	
6/4-in.	190	135	
8/4-in.	200	140	

WHITE OAK—PLAIN

4/4-in.	185	115	
6/4-in.	195	140	
8/4-in.	205	145	

PECAN

	FAS	No. 1C	No. 2C
4/4-in.	117	97	55
6/4-in.	130	110	65
8/4-in.	155	130	70

POPLAR—PLAIN

			No. 2A
4/4-in.	170	130	80
6/4-in.	185	140	87
8/4-in.	205	150	90

SYCAMORE—PLAIN

			No. 2C
4/4-in.	117	97	60
6/4-in.	125	105	69

TUPELO—PLAIN
TUF TEXTURE—DEEP SWAMP

4/4-in.	125	105	
6/4-in.	155	135	
8/4-in.	160	140	

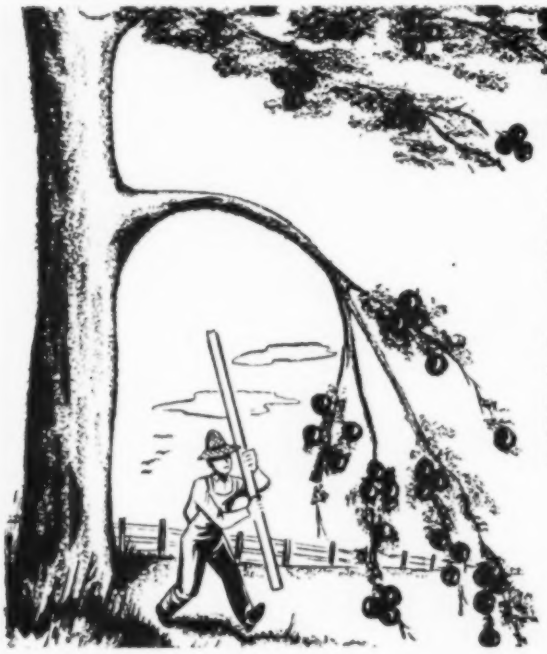
WILLOW

4/4-in.	142	120	60
6/4-in.	142	132	67
8/4-in.	150	135	70

APPALACHIAN HARDWOODS

F.O.B. mills—Johnson City, Tennessee area—estimate of present FOB Appalachian mill point average ceiling price sales made subsequent to January 25, 1951 to consuming trade of band-sawn Appalachian hardwood in carload quantity, random widths & lengths, rough, air dried, & graded in accordance with NHLA rules of inspection. Prices in dollars per M'. on straight cars of upper bracket grades, premiums are frequently being paid. Basis selected for the purpose of indicating transportation costs to principal consuming markets from Johnson City, Tennessee area.

(Continued on page 19)



When the bough bends

. . . your production capacity will crack. *Don't overload it!* Let Gamble Brothers' fifty years' experience in wood engineering help you solve your re-design problems . . . with no obligation.

Gamble Brothers can furnish the parts you need to handle defense orders, and save *you* the cost of delay, investment in new equipment, facilities, and personnel. Use Gamble Brothers' solid or laminated wood parts, rough or finished, ready to assemble. WRITE TODAY!

Gamble Brothers Incorporated

Engineered Wood Parts in Southern and Appalachian Hardwoods, Walnut or Mahogany

MAIN PLANT: LOUISVILLE 9, KY. • BRANCH: MONTGOMERY, ALA.

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Nelsonized Wood, left, resisted warping when exposed to high humidity with untreated wood.

STOP SWELLING

Nelsonizing retards moisture pick-up. No more swollen drawers that can't be opened!

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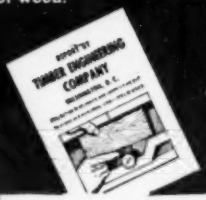
Nelsonizing's high anti-shrink efficiency means cabinet doors shut easily and stay shut!

Nelsonized-treated ponderosa pine, red oak and sap gum resisted swelling and shrinking in rigidly controlled humidity cabinet and outdoor weather tests better than untreated woods or woods treated with competitive products.

Tested Nelsonite chemical formulae are *proved* highly effective in the *dimensional stabilization* of wood products for indoor or outdoor end use.

Nelsonite has been laboratory tested and approved by Timber Engineering Co. (report sent on request), and is recognized by National Hardwood Lumber Manufacturers Association, Southern Furniture Manufacturers Association, and the Wood Office Furniture Institute. Nelsonite meets basic U.S. Government specifications on wood stabilizers and preservatives.

There is a Nelsonite formula specially compounded to attain the specific results desired on any wood or for any end use of wood.



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Gentlemen:

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Please send us sample to meet our individual specifications, at no charge.

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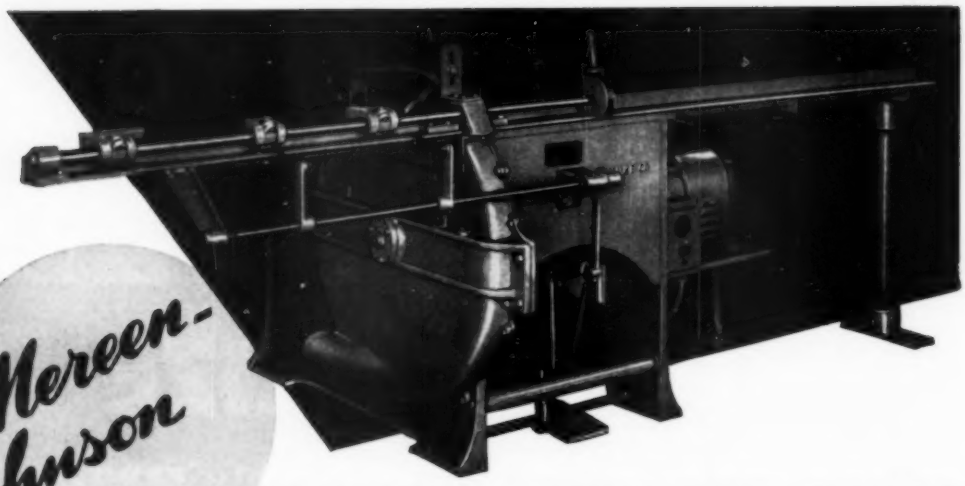

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The greater your production . . . The greater the saving

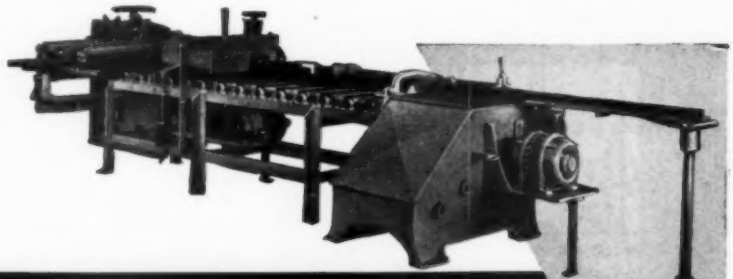
- **Ideal for any production cross-cutting operation.**
- **Fewer machines save floor space, power, labor**
- **Includes new retracting stock support**

THESE MACHINES have a capacity equal to two or three swing, straight line or roller carriage cut-off saws—depending on the condition of the stock. They are particularly efficient wherever short lengths are cut from long boards in quantity production. Two saws, mounted opposite from each other on a revolving yoke, make alternate cuts. Each saw disappears beneath the table as it cuts. The operator never has to wait for the saw to return to the back position, as is the case with an ordinary reciprocating type of machine. The stop lever at the operator's left hand leaves the right hand free to handle the stock. *Available in two models: No. 477, 17" wide. No. 478, 23½" wide.*

write for Bulletin No. 477

COMBINATION UNIT

Automatic cut-off saw, gang rip saw and automatic hopper feed for gang rip saw. The stock leaving the cut-off saw drops onto the bed of the automatic feeder. This in turn feeds into the rip saw—eliminating the off bearer of the cut-off saw and feeder of the gang rip saw. Note the saving of two men in this operation.



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CHEVROLET DIVISION OF GENERAL MOTORS, DETROIT 2, MICHIGAN

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TWO GREAT VALVE-IN-HEAD ENGINES—the 105-h.p. Loadmaster or the 92-h.p. Thriftmaster—to give you greater power per gallon, lower cost per load • POWER-JET CARBURETOR — for smooth, quick acceleration response • DIAPHRAGM SPRING CLUTCH—for easy-action engagement • SYNCHRO-MESH TRANSMISSIONS — for fast, smooth shifting • HYPOID REAR AXLES—for dependability and long life • NEW TORQUE-ACTION BRAKES—for light-duty models • PROVED DEPENDABLE DOUBLE-ARTICULATED BRAKES — for medium-duty models • NEW TWIN-ACTION REAR BRAKES — for heavy-duty models • NEW DUAL-SHOE PARKING BRAKE —for greater holding ability on heavy-duty models • NEW CAB SEATS—for complete riding comfort • NEW VENTIPANES — for improved cab ventilation • WIDE-BASE WHEELS—for increased tire mileage • BALL-TYPE STEERING—for easier handling • UNIT-DESIGN BODIES—for greater load protection • ADVANCE-DESIGN STYLING—for increased comfort and modern appearance.

Plaskon Resin Glues

Comply with Latest Government Specifications!

Use this handy chart to choose the right type for your job

NO. OF SPECIFICATION DATE OF ISSUE	TITLE	PRODUCTS COMPLYING WITH SPECIFICATIONS
AN-G-8 25 April 1942	Glues, cold setting resin.	Plaskon 250-2—no extension Plaskon 201-2 with hardeners "A" or "K-3"—no extension
CG-496 17 June 1946	Glue, resin type (liquid and powder)	Same as AN-G-8
JAN-P-139 22 August 1946	Packaging and packing for overseas shipment. Plywood container grade.	*TYPE A* Plaskon 815-12 with 20 Walnut Shell Flour *TYPE B* Plaskon 250-2 20 wheat flour extension* Plaskon 201-2 20 wheat flour extension* Plaskon 107-2 20 wheat flour extension* Plaskon 121-2 100 wheat flour extension* Plaskon 221-2 100 wheat flour extension* Plaskon 355-2L 50 wheat flour extension cold press*; 100 wheat extension hot press* Plaskon 350-2L (same as Plaskon 355-2L)* (Note—When making mixes of high flour extension it is recommended that pentachlorophenol be added. See par. C-1c (3)a of Specification JAN-P-139)
AN-A-45 30 March 1949	Adhesive, high temperature setting resin	Plaskon 815-12 with 20 walnut shell flour.
MIL-P-6070 29 March 1950 Supersedes: AN-P-69a	Plywood and veneer aircraft flat panel	Glues to meet AN-A-45 (MIL-A-5534)
CS-35-49 1 December 1949	Hardwood plywood	*TYPE I or Technical Grade* Plaskon 815-12 with 20 walnut shell flour. *TYPE II* Any Plaskon Resin Glue used per instructions
MIL-P-66A 27 December 1949 Supersedes: JAN-P-66	Plywood, flat-panel	Hardwood plywood to meet CS35-49
JAN-P-108 30 June 1944	Packaging and packing for overseas shipment—boxes, fibreboard, brackets, V board, W board, exterior and interior as in Army No. 100-Z1, Navy No. 39 P16 B.	Plaskon 350-2L Plaskon 335-11L Plaskon 521-2L with approved starch formulation.

*Extension based on resin solids.

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—THANKS TO *Triple-Action* HARDENERS

The same TRIPLE-ACTION Hardeners now supplied separately with Plaskon Liquid Resin Glues have been used for years in the scientific blending of Plaskon *Powdered* Resin Glues. The outstanding performance of these hardeners has helped create the preference which has made Plaskon the world's largest producer of urea resin glues.

PLASKON®

RESIN GLUE

(Continued from page 14)

TOUGH ASH

	FAS	FIF	No. 1C	No. 2C
4/4-in.	160	150	110	67
6/4-in.	180	170	122	72
8/4-in.	190	180	147	85

BASSWOOD

				No. 2A
4/4-in.	180	170	130	84
6/4-in.	190	180	137	94
8/4-in.	195	185	147	96

BEECH

				No. 2C
4/4-in.	145	135	110	75
6/4-in.	160	150	130	75
8/4-in.	170	160	130	80

BIRCH

4/4-in.	205	195	140	80
6/4-in.	220	210	150	85
8/4-in.	230	220	155	90

BUCKEYE

4/4-in.	135	125	100	65
6/4-in.	160	150	115	73
8/4-in.	165	155	120	78

CHERRY

4/4-in.	200	190	135	80
6/4-in.	235	225	160	85
8/4-in.	250	240	170	90

CHESTNUT

4/4-in.	165	...	115	60
6/4-in.	170	...	120	62
8/4-in.	175	...	125	62

HICKORY

4/4-in.	125	115	78	53
6/4-in.	145	135	86	58
8/4-in.	165	155	90	60

HARD MAPLE

4/4-in.	190	180	125	80
6/4-in.	200	190	135	84
8/4-in.	205	195	145	90

SOFT MAPLE

4/4-in.	160	150	115	67
6/4-in.	170	160	125	69
8/4-in.	175	165	130	72

RED OAK—PLAIN

	FAS	FIF	No. 1C	No. 2C
4/4-in.	185	175	130	
6/4-in.	200	190	135	
8/4-in.	215	205	145	

WHITE OAK—PLAIN

4/4-in.	200	190	135	
6/4-in.	220	210	145	
8/4-in.	225	215	155	

WHITE OAK—WHND

4/4-in.	115	105	85	...
6/4-in.	140	130	110	...
8/4-in.	150	140	115	...

YELLOW POPLAR—PLAIN

				No. 2A
4/4-in.	210	200	140	88
6/4-in.	220	210	150	93
8/4-in.	230	220	160	..

POPLAR SQUARES

	FAS	No. 1C & 2D
4x4-in.	245	175
6x6-in.	280	190
8x8-in.	340	240

WALNUT—STEAM TREATED

	FAS 6" & up	FIF 6" & up	No. 1C	No. 2C
4/4-in.	350	305	185	80
6/4-in.	370	325	210	95
8/4-in.	385	340	235	100

Walnut list reflects average fob mill, all areas. Basing point not generally observed.

NORTHERN HARDWOODS

Estimate of present FOB Wausau, Wisconsin mill point average ceiling price sales made subsequent to January 25, 1951 to consuming trade on band-sawn Northern hardwoods in carload quantities random widths & lengths, rough air dried & graded in accordance with NHLA rules on inspection. Prices in dollars per M'.* On straight cars of upper bracket grades, premiums are frequently being paid.

BROWN ASH

	FAS	No. 1C	No. 2C
4/4-in.	145	105	73
6/4-in.	155	110	83
8/4-in.	160	130	88

BASSWOOD

4/4-in.	130	125	73
6/4-in.	190	185	83
8/4-in.	195	145	94

BEECH

4/4-in.	145	100	68
6/4-in.	160	115	73
8/4-in.	165	130	80

BIRCH

4/4-in.	265	145	80
6/4-in.	275	160	90
8/4-in.	280	175	100

ROCK ELM

4/4-in.	135	115	65
6/4-in.	145	125	75
8/4-in.	150	135	80

SOFT ELM

4/4-in.	125	105	71
6/4-in.	135	115	81
8/4-in.	140	120	86

HARD MAPLE

4/4-in.	190	130	78
6/4-in.	200	140	81
8/4-in.	205	145	83

SOFT MAPLE

4/4-in.	155	120	73
6/4-in.	170	130	82
8/4-in.	185	140	90

RED OAK

4/4-in.	175	125	77
6/4-in.	185	145	82
8/4-in.	195	155	85

* Air dried Northern Hardwoods are no longer available and sales presently being made cover green stock or stock only partially seasoned. Orders are being placed for stock to be cut and shipped green when accumulated.

Ammunition Box Hardware

If your contracts call for hardware for ammunition boxes like that shown here, or for other ordnance equipment—save time by consulting Stanley. The largest manufacturer of hinges and hardware specialities, The Stanley Works has the "know-how" to help you develop the items you need, and the plant facilities to supply them on time.

Send us complete details of your requirements, including prints, if possible. We'll help you meet delivery commitments.

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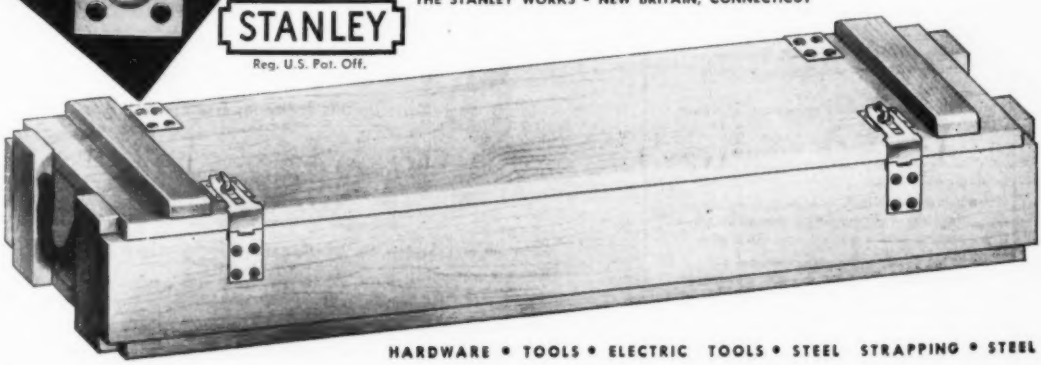
STANLEY

Reg. U.S. Pat. Off.



HARDWARE • TOOLS • ELECTRIC TOOLS • STEEL STRAPPING • STEEL

New, Automatic Continuous Moisture Detector

Photo shows installation with automatic marking device. Red ink is placed on all stock containing more than desired moisture content.

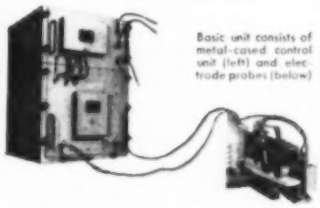
Here's a completely new device which stops costly moisture trouble before it starts, helps you manufacture better products—more profitably!

NEW LAUCKS SENTRY Continuous Moisture Detector gives automatic, continuous production-line control of veneer or core stock moisture content—*before assembly*.

Built to meet rugged service requirements, Laucks Sentry is installed on present production equipment, operates at normal production speed, does not interrupt flow of material, requires no special operators.

Completely accurate, completely dependable, this remarkable new device can be adapted to virtually any manufacturing process in which moisture is a problem. The head of the Pacific Northwest furniture manufacturing plant in which Laucks Sentry was use-tested for over a year reports that it "paid for itself in less than six months." Other installations are being made in plywood and pulpwood plants and an adaptation is being developed for use in connection with kiln dried lumber at large sawmills.

Quick Facts About Laucks Sentry Continuous Moisture Detector



Basic unit consists of metal-cased control unit (left) and electrode probes (below)

- Gives 100% automatic, positive continuous detection of moisture in veneer, core stock, pulpwood, lumber or other material in which moisture is a problem.
- Is a production machine—not a hand operated meter.
- Does not impede or slow production.
- Can be used on any wood species. Sensitivity: 0:1%. Can be set to check any moisture content common to woodworking practice.
- Will detect moisture regardless of where it occurs in material.
- Can be arranged to mark excessively wet stock, ring bell or activate automatic kick-off.
- Installed by factory-trained technicians. Requires no special operators — your present personnel can operate it after 5 hours instruction.
- Use-tested for over a year. Developed by Research Foundation of West Coast plywood industry.

If You Have a Moisture Problem, Write Details Today for Free Consultation

LAUCKS Sentry

Continuous Moisture Detector

Laucks Sentry Products

4441 Stuart Bldg., Dept. LL7, Seattle 1, Wash.

Manufactured by Instrument Division, Laucks Laboratories, Inc.

H. V. SIMPSON

N. C. BROWN

F. W. GOTTSCHALK

Wood Salutes

With this issue, we are saluting three more top rank executives, each of whom is contributing his expert knowledge and experience in an important department of the forest products industries.

Harold V. Simpson

Harold V. Simpson is an Oregonian. He was born at Ashland, Oregon, educated at Ashland public schools, graduated from University of Oregon, earning a B. A. Degree in Business Administration. He served in France in World War I in the artillery.

Simpson is recognized as one of the country's top lumber executives. He has headed the West Coast Lumbermen's Association since September 1945. He was manager of the Washington, D. C. office of the association during the war years from September 1, 1942 until his promotion. Through his efforts lumber problems with military and government agencies were expedited with skill and dispatch.

Simpson has learned the lumber business from the ground up. After graduation from university he went to work in a lumber mill, then moved on to New York to enter lumber selling. His experience includes a decade spent in lumber exporting. He managed one of the large Canadian lumber firms at Vancouver, British Columbia, and spent considerable time in London and South Africa.

In the last five years Simpson's trade promotion experience has been put to work with telling effect for the West Coast lumber industry. He has sparked an outstanding national advertising and promotion program and through his leadership the Douglas fir lumber industry is developing a continuing, sound approach to merchandising and lumber promotion.

Nelson C. Brown

Nelson Courtlandt Brown was born in South Orange, New Jersey, and gained early experience in the woods and with forest products in an old woodlot that was in the family since 1667, in Northern New Jersey. As a young man he helped to get out fence posts and rails, some sawlogs for lumber, and fuelwood.

After graduation from Yale, with an A.B. degree in 1906 and a Master of Forestry degree in 1908, he was with the Forest Service in the Northwest. He also worked in Alabama and several Southern States on special assignments.

In 1912 he joined the new New York State College of Forestry, established at Syracuse in 1911, to develop the field of Forest Utilization. He conceived the idea of training young men for the many technical aspects of lumber, logging, forest products, dry kiln engineering, timber preservation, veneers and plywood, and associated interests. This departure from orthodox training of foresters has distinguished

(Continued on page 76)

Fred W. Gottschalk

Technical Director of the American Lumber and Treating Co., Chicago, Ill., is Fred Gottschalk's official title, but Forest Products Goodwill Ambassador should also be added.

Fred, born in Davenport, Iowa, just 40 years ago, was graduated from Iowa State and received his Master of Forestry Degree at Yale in 1937. He was awarded a special fellowship at Yale to investigate the strength of treated woods and related fields of research.

His association activity has made a host of friends for him from one coast to the other. As president of the Forest Products Research Society 1947-1948, he started the groundwork upon which a highly regarded organization now is building. His personal magnetism, drive and good common sense were invaluable during the FPRS' formative period.

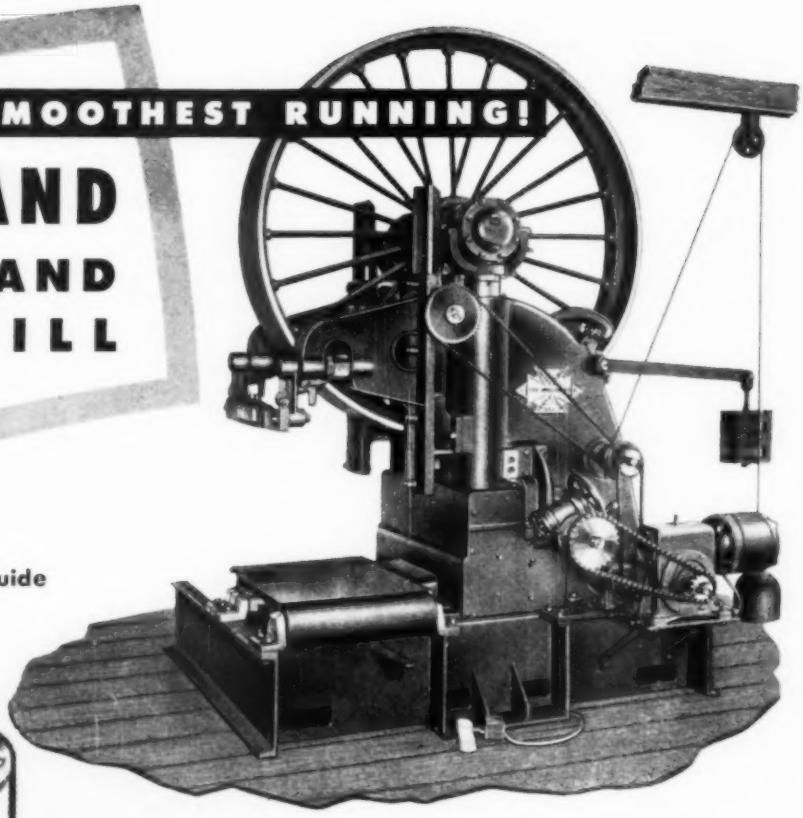
During 1950-51 season, Fred was president of the American Wood Preserver's Association, a spot held after coming up through the ranks. The 47th annual meeting in Chicago was the largest in the group's history.

Membership in Sigma Xi, American Chemical Society, National Fire Protection Association, American Rail-

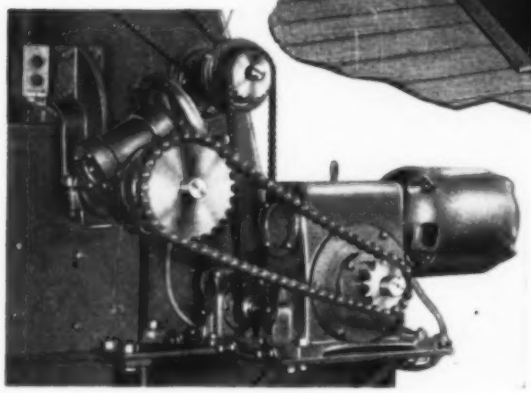
(Continued on page 76)

SMOOTHEST RUNNING!

WHELAND 6′ BAND MILL



Now available with motorized top saw guide and top wheel lift.



Optional equipment on Wheland 6′ Band Mill now includes motorized top saw guide, controlled by a reversible foot switch which can be located at any convenient position for either the sawyer or offbearer; also a motorized wheel lift for raising and lowering the top wheel, controlled by a two-way push button switch which is located on the offbearer's side of the main housing.

See a Wheland 6′ Band Mill in action and find out why so many lumbermen agree that it's the best in the field. Wheland 6′ Band Mill offers you every advantage:

BETTER SAWN LUMBER—Accurately balanced wheels and extra sturdy construction give perfect alignment, smoother sawing.

LESS KERF—This Band Mill saves up to 16% more good lumber from each log you saw as compared with circular sawn lumber.

FASTER PRODUCTION—This band mill cuts lumber faster than any other. Extra quality construction gives you faster production day after day. For 12″ or 13″ wide saws.

Wheland also builds band mills in 54″ and 8′ sizes with all auxiliary equipment to match.

WRITE for bulletins giving full facts and figures on Wheland Band Mills. No obligation.

The WHELAND Company

MANUFACTURERS OF COMPLETE SAWMILLS AND AUXILIARY MACHINERY
CIRCULAR SAWMILLS—HEAVY, PORTABLE • BAND SAWMILLS • EDGERS AND TRIMMERS • TRANSMISSION AND CONVEYOR MACHINERY

CHATTANOOGA, TENNESSEE

FOR OVER 80 YEARS—THE FOREMOST NAME IN SAWMILL EQUIPMENT

the high romance of wind-swept waves
the soft luxury of moonlit tropics
the smart appearance of modern decor
the distinguished beauty of Douglas Fir
...all this and plywood too, in
Sea Swirl
Sensational new wonder wood of Associated Plywood Mills, Inc. Ideal for interiors of homes and offices—either in natural finish or pastels. Available at your nearest APMI Sales Warehouse.
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PLYWOOD MILLS at Eugene and Willamina, Oregon
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Sales Warehouses:
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Dual-load switch permits time-saving use of two bonding set-ups. While one load is being bonded, the other can be prepared.

Thermex
ELECTRONIC BONDING EQUIPMENT

NEW! compact portable unit for many bonding jobs

THERMEX Electronic Bonding Equipment for:

EDGE-BONDING OF LUMBER
MOLDING OF LAMINATED PARTS
BONDING PANELS-TO-FRAMES
FABRICATION OF ASSEMBLIES
BONDING OF PLYWOOD.

YOU'LL find the new THERMEX 3-kilowatt Bonding Equipment (Model 3H) a versatile performer on a variety of small bonding operations.

It's well insulated—a new construction reduces escaping radiation to far below the legal maximum. Each unit is certified in accordance with FCC regulations.

It's dependable . . . installation by Thermex factory engineers assures satisfactory operation from the start. All parts accessible for easy servicing.

THERMEX users everywhere report reduced labor requirements, boosted production. A THERMEX field engineer will be glad to study your operations and make recommendations—at no obligation. Write The Girdler Corporation, Thermex Division, Louisville 1, Kentucky.

THERMEX—T. M. Reg. U. S. Pat. Off.

THE GIRDLER CORPORATION
Thermex Division

Wood Puzzlers

When replying please send answers to WOOD & WOOD PRODUCTS and refer to the number after the title. We will be glad to forward it for you. Send us your problems, too. Perhaps other readers have the answers.

Hardboard—No. 7

"We are very much interested in hardboard. Do you know of any concern making it? Please send us a list of the mills and their addresses so that we may contact them. We will need a great deal of it." (North Carolina)

Moldings from Ponderosa Pine—No. 8

"It occurred to me that perhaps you could help me solve the problem of locating lumber concerns on the Pacific coast in a position to produce moldings from Ponderosa Pine in carload lots." (N. H.)

Venetian Blind Wood Slats—No. 9

"Do you have any listings to which you can refer us in obtaining Venetian Blind wood slats which might include the names of manufacturers of these; or, of any sources which might accumulate drop-offs? We can use regular or reject stock, unfinished (wood slats in their natural condition)." (N. J.)

Pallet Stock—No. 10

"Please advise us if there is anyone who manufactures pallet stock, cut to size." (Ohio)

High Frequency Generator—No. 11

"We wonder if you could put us in touch with some firm who manufactures or sells a small high frequency generator for quick setting of the glue line for high production." (Iowa)

Teak Wood and Parana Pine—No. 12

"We are in quest of information concerning outlets for Teak Wood and Parana Pine. Since we are unfamiliar with the lumber industry, we would very much appreciate any assistance in enabling us to reach buyers of these items." (New York, N. Y.)

Rock Elm—No. 13

"We would like to contact firms who could supply us with Rock Elm in random lengths from 4 to 16 feet, and 4 inches thick, either dry or green. We use it in hocky sticks." (Canada)

Wooden Down Spouts—No. 14

"A number of our customers have asked if we have wooden down spouts available. We are interested in determining whether we might manufacture wooden down spouts to help fill the need for this item as metal (which is ordinarily the preferred material) becomes less available. We have no information regarding the design of this product and are wondering if you could help us obtain some information." (Washington)

Actually it doesn't take a scientist to determine this equation. It is merely our way of graphically telling you that Fair Price, Rapid Service and High Quality are the three ingredients that go into all of PAMUDO'S operations, serving over 5,000 dealers throughout the United States.

IF YOU HAVE A WOOD PRODUCTS PROBLEM, CALL

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General Office
Direct Shipments . . .

Lumber & Lumber Products — Straight Cars & Mixed Cars — Douglas Fir Mouldings — Pine Mouldings — Window Frames — Douglas Fir Plywood — Pine Plywood — Douglas Fir Doors — Pine Doors — Cut Stock — Industrial Plywood Manufactured to customers' specifications.

TACOMA BUILDING
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• Warehouse Stocks of
• Lumber and Lumber
• Products . . . Plywood —
• Mouldings — Doors —
• Window Frames—Windows

WAREHOUSES IN 5 PRINCIPAL CITIES

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• CHICAGO 38, ILLINOIS.
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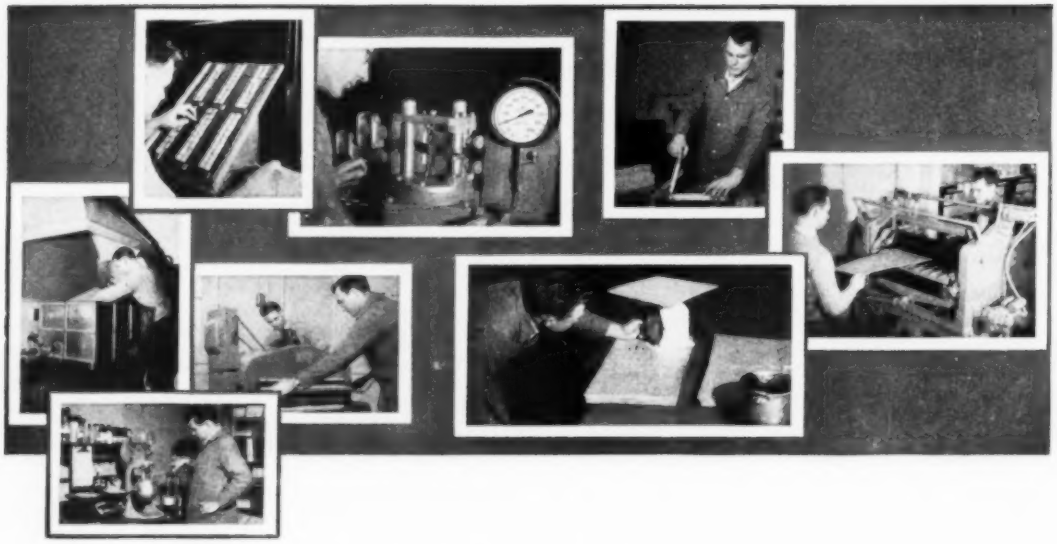
• ELIZABETH, NEW JERSEY.

•Price - Service - Quality
Pretty - Darn - Quick
= Pacific Mutual Door Company



standard of the industry

thanks to constant production control

P-398 PLYOPHEN

Pictured above are scenes from the pilot "plywood mill" in constant operation at RCI's Seattle plant. The practical research carried on here is one of the reasons why P-398 Plyophen is the standard of the plywood industry. Others are the fact that RCI sales and service representatives thoroughly cover the Pacific Northwest—and that RCI's unceasing research and volume production have been major factors in reducing plywood manufacturing costs. Deal with the leader—it's safer all the way 'round.

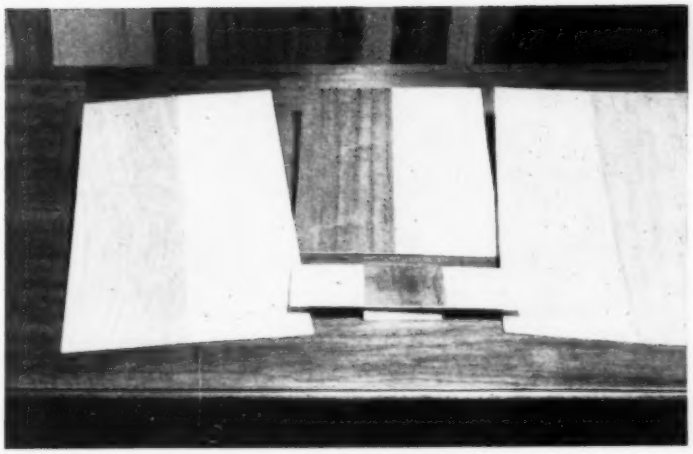
REICHHOLD CHEMICALS, INC.

RCI

General Offices and Main Plant, Detroit 20, Michigan

Other Plants: Brooklyn, New York
Elizabeth, New Jersey • South San Francisco and Azusa, California • Tuscaloosa, Alabama • Seattle, Washington • Chicago, Illinois • Charlotte, N. C.
Liverpool, England • Paris, France • Sydney, Australia • Sassenheim and Apeldoorn, Holland • Naples, Italy • Buenos Aires, Argentina • Hamburg, Germany
Toronto and Port Moody, Canada • East London, South Africa • Osaka, Japan • Werndorf, Austria • Gothenburg, Sweden • Zurich, Switzerland

SYNTHETIC RESINS • CHEMICAL COLORS • PHENOLIC PLASTICS • PHENOL • GLYCERINE
PHTHALIC ANHYDRIDE • MALEIC ANHYDRIDE • SODIUM SULFATE • SODIUM SULFITE



OAK, mahogany, walnut, and maple veneers showing the natural color to the left and bleached on the right of each panel.

Pre-bleached Veneers

Here's a new treatment for veneers that is the answer to many of the light finishing problems. Veneer men, borrowing a trick or two from the textile field, have come up with pre-bleached veneer to further enhance wood's usefulness.

In line with modern trend and the desire for more uniform light finishes on furniture, cabinets and interiors, research has developed another new wood product . . . *pre-bleached veneers*. It is best described as various face veneers in which the coloring matter in the wood has been neutralized by a special process without affecting the structure of the wood in any way.

Pre-bleached veneers were developed by Ben H. Creal, veteran veneer man. A sizeable quantity was produced and successfully used prior to World War II. Then the supply of necessary special chemicals was cut off by the War Production Board. Today, due to recent increases in their production, these chemicals are now available.

Hill Brothers Veneer Co., Inc. of Edinburg, Ind., has just finished a new plant to produce this pre-bleached veneer by the Creal process. It has all stainless steel equipment. Quality control is maintained by automatic control devices checked by technicians in a well-equipped laboratory.

The product is not just another experiment. The Hill Brothers checked its previous use in actual products after ten or more years in actual use. Also, a quantity which had been crated and stored for eight years when unpacked was found as white as when crated.

The product is of special interest to manufacturers who are desirous of producing a better permanent finish that resists discolor or change. For example, if a white or off-white television cabinet is finished they can rest assured there are no chemicals that will bleed through causing discoloration as is common with surface bleaching.

If a white product is wanted, this veneer need only be finished with water white lacquer. If a color or high lighted effect is required they have a uniform neutral base upon which they can build. This means that it can be stained or tinted to the desired color with the assurance that it will not be changing as time goes on. It is claimed that there is no comparison between furniture cabinets and paneling made from pre-bleached veneers and veneers that are surface bleached.

The special manufacturing process removes all stains, spots and mineral streaks in the veneer so that they do not show up in any way. With the severe drop in the quality of veneer logs now obtainable this is a great advantage as it furthers the supply of veneers available.

With pre-bleached veneers, designers now have the opportunity of fashioning various wood products making use of the natural beauty of the grain and wood formation, which is unobtainable with synthetic materials. All of the warmness and livability of wood is retained, while the inherent beauty produced by nature, and cannot be successfully reproduced by man, is enhanced. With this product it becomes possible for the designer to produce furniture that will harmonize with the present new trend in interior decoration.

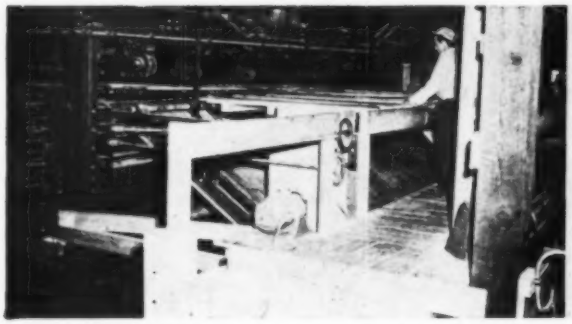
Pre-bleached veneers are used in production exactly the same as regular veneers. However, they virtually eliminate all bleaching and bleaching problems such as the costly problem of case goods being returned for re-bleaching. A very important point in the method of producing pre-bleached veneers is the neutralization of the wood in the last operation so that there is no trace of chemicals in the finished product that can effect either the gluing or final finishing operations.

No trouble need be anticipated in the gluing of pre-bleached veneers if the lighter color glues such as Cascamite TS-26W is used. Experiments have shown that any of the present types of gluing processes can be successfully used including high frequency.

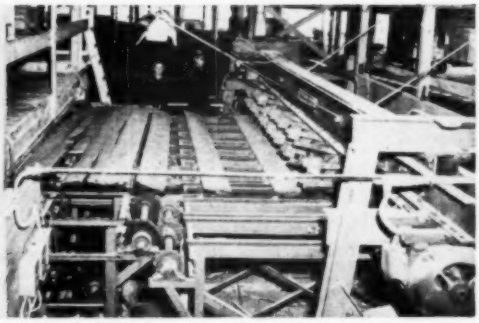
More Beauty

Until now, in the dyeing of veneer, it has never been possible to bring out the natural beauty of the wood retaining a clean clear color and a product that could be used in high grade case goods. Dyestuffs are tempermental and trying to combine dyestuffs with the natural wood minerals has been practically impossible. Mr. Creal recognized this difficulty and decided to follow the technique of the textile manufacturers. He first neutralizes the chemicals in the wood and making it as white as possible and thereby eliminating all unfavorable chemical reaction. Dyeing by this method produces a completely penetrated veneer which when sanded remains uniform in color. Panels, case goods and veneer eight to ten years old are still the same color as when produced. On a production basis it has been proven that thicknesses up to 1/24" are the most practical pre-bleached veneers to produce.

Pre-bleached veneers may prove to be another great step in wood technology. It appears to be a sound product of proven worth opening up new horizons in design and wood finishes. It is a product that should be of interest to every manufacturer producing the light wood finishes now in demand.



BREAKING DOWN the load at the automatic load unstacker.



FEED CHAINS carry lumber to trimmer feed table.

How Champlin Increased Output

One-half million board feet of finished lumber per week is the production of the modern planing mill of W. H. Champlin at Rochester, N.H. When fire destroyed the box plant back in 1949, management decided to build a real planing production plant. Here's how it worked.

by PETER GRANT

The modern planing mill of W. H. Champlin at Rochester, New Hampshire is the most modern and efficient mill the author has ever seen. This mill's production is chiefly in the form of blanks–S4S boards–for building construction and industrial lumber from 4/4 stock, and dimension framing and structural lumber from 8/4 material. About two-thirds pine and one-third spruce and hemlock are produced.

The main sources of rough lumber are two company-owned sawmills: a triple mill at Berwick, Maine with a weekly lumber production of about 200,000 board feet, and a double mill at Littleton, New Hampshire with a production of about 100,000 board feet per week. Lumber also comes from four to eight company-controlled portable sawmills operating in Maine and New Hampshire.

These sources furnish the requirements of the average weekly planing mill production of about 300,000 board feet of finished lumber. Some hardwood lumber and box boards are also cut by these mills.

The planing mill was erected on the site of their wooden box plant, destroyed by fire in 1949. A small planing mill operation had been maintained in conjunction with the box plant up to that time but was quite limited in production and constituted only a small part of the company's business.

The final decision to develop the planing mill division into a real production plant was made chiefly because of the demand for building construction lumber, which was in current short supply, of wood species native to their timber holdings and within the productive capacity of their sawmill operations.

It was decided to install high-speed production equipment from the West similar to that employed by the large production mills of the West coast. The entire installation was carefully engineered and pre-planned by Stetson-Ross to provide direct high-speed production flow with a minimum of manual handling with the best possible utilization of available space. Delivery and installation was made by their eastern representatives, Babcock Machinery Company.

Thorough Planning

This thorough study and planning of machinery and handling facilities naturally included consideration of buildings required to house them. Clear working space was necessary to take full advantage of this high-speed production equipment and to permit straight-line production flow. Truss construction was used throughout the plant to provide a continuous unobstructed working floor space. Special trusses for this purpose were obtained from Timber Structures, Inc. especially designed for this mill.

Planing mill operations are housed in two large rectangular wooden buildings which are well-lighted and carry plenty of headroom. Green storage, dry kilns, dry storage, trimming and sorting operations occupy one building, and planing and matching and grade sorting operations are contained in the other. A large accumulation yard, paved for truck travel, lies between the two buildings. A number of storage buildings are arranged about the yard, and air-drying and shipping storage areas are located at the far end of the planing mill proper. The buildings and storage yards cover a combined area of some eighteen acres.

Wood Waste Fuel

Three large boilers are fired with wood waste to furnish heat and power during working hours and two oil-burning boilers are used to provide heat for the dry kilns during shutdown periods as the kilns are operated on a 7-day-a-week and 24-hours-a-day schedule. A Providence steam engine and generator amply provides power for the present plant load of 600 h.p. and has excess power available for future expansion.

Besides the fleet of lumber trucks used to deliver lumber from the sawmills, two Ross fork lift trucks and two Ross straddle carriers were purchased to keep pace with anticipated production demands. A heavy-duty Gerlinger fork lift truck was later added.

High-speed production flow begins with the arrival of a truckload of lumber from one of the sawmills. The truck is backed up a ramp to the end of an elevated live-roll power conveyor. The lumber is shunted over

the rolls on the truck body until it contacts and is picked up by the live rolls which draw it onto the conveyor.

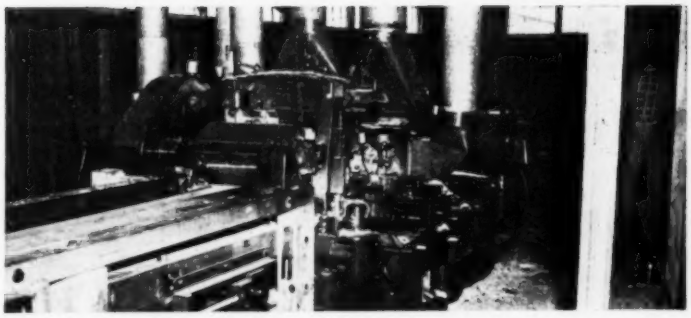
These lumber loads approach the American tilting unloader hoist endwise over the live rollers under push button control operated by the feeder, proceeding onto the hoist arms in their down position by powered rolls. The individual load is raised and tilted to break down the lumber package and the feeder controls the flow of boards over the transfer chains to an American semi-automatic lumber stacker, aided by the action of a dual rubber-tired lift wheel unit. After making the initial rise the hoist elevates a course at a time to deliver lumber to the transfer chains.

Foot Controlled Stacker

The lumber stacker is operated by foot controls, raising a kiln truck mounted on its lift first to bottom course level and then dropping it a course at a time as the lumber is stacked and stickered. As the lumber is fed to the stacker two men place stickers over each course, using stacker guides to insure uniform sticker arrangement. A tally man works at this station also to check the footage of each truckload of lumber as it is stacked.

A Moore electric transfer car, operating over a traverse track between the stacker and dry kilns, is used to transfer loaded kiln trucks either directly into one of the dry kilns or across to one of the green storage tracks. A winch is mounted on the transfer car and is used to pull loaded trucks from the stacker area and to deliver them to their appointed location.

This operation will unload, break down, stack and sticker from 50,000



OUTFEED end of the 10-knife head planer and matcher which operates at 300-325 ft. per minute.

to 60,000 board feet of lumber in a single 8-hour shift. All 4/4 lumber is kiln-dried in a bank of four Moore forced-draft double dry kilns. The average drying time here is from 5 to 6 days and the kilns have a total charge capacity of about 300,000 board feet. A second transfer car is operated at the discharge end of the kilns for the transfer of kiln-dried lumber to the tempering sheds for equalizing before machining.

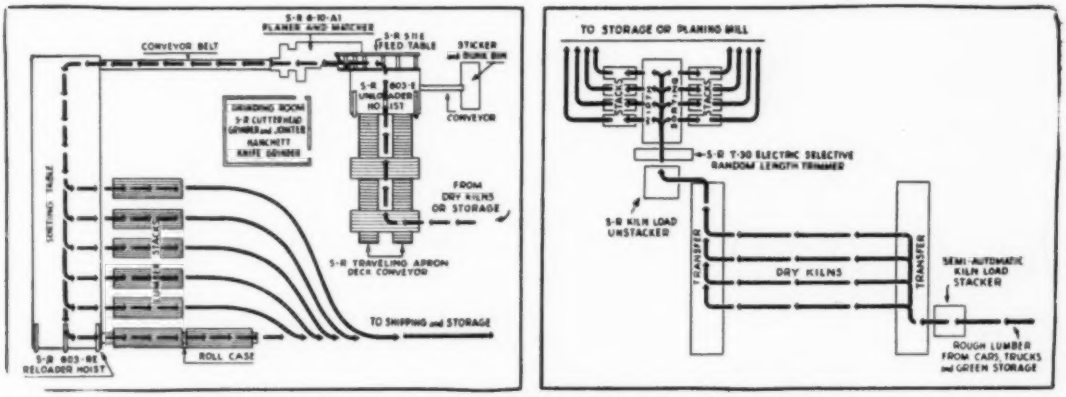
Truckloads of tempered lumber are delivered from this area to a Stetson-Ross automatic kiln load unstacker where the load is broken down and separated from stickers for feeding through the electric selective random length trimmer. The stickers removed by the feeder are placed in portable bunks at either end of the platform for removal back to the stacker without further rehandling by lift trucks.

All boards are lined up prior to being fed to the trimmer feed chain by means of a traverse belt which butts them against a feed chain bumper for alignment. The kiln load unstacker lift raises the lumber stack vertically a course at a time and a series of overhead chains are brought into contact with the lumber. Dogs securely attached to the bottom of these chains serve to move the boards to the traverse belt.

Feed chains carry the lumber to the trimmer feed table which feeds it to the trimmer saws. In normal operation this selective random length trimmer automatically smooth end trims the boards to the nearest possible even foot length. Where the trimmerman needs to use selective cutting, he may detach any saws from their lift wheels by solenoid switch control to make the desired cut. Trimming is done at this machine with overcutting saws rotating in the direction of the lumber flow and each intermediate saw is provided with two feed chains for adequate support. Hollow ground saws are used and their teeth are not spring-set.

The chief reasons trimming is done at this mill before the planing and matching are to produce smooth trimmed ends without whiskers in the finished board, and to eliminate possible trouble at the planer and matcher from fishtail ends. All trim-

(Continued on page 62)



DIRECT high-speed production flow plan of the Champlin Planing Mill.

Air Hose Maintenance Important

Finishing room operations can be no better than the equipment maintenance will allow. Here is the part that spray gun hose plays and how to get the most out of it.

CLEAN hose means a proper finish.

by **JOHN E. HYLER**

Selection and care of spray gun hose is important. If the wrong hose is being used, proper maintenance will not overcome that fact. Hose can be wrong by being of poor quality, but the best of spray-gun hose cannot be expected to have normal length of life if too small in diameter. Some have compensated for too-small hose diameter by increasing air pressure. This lowers the efficiency and shortens the life length of the hose. Hose under pressure is hose under strain not otherwise present. Therefore, release pressure from hose whenever it is not in use.

The length of air hose is related to long hose life. Have a hose long enough in each case to allow as free movement as necessary, but no longer. The longer a hose, the easier it gets tangled; the more wear it gets; and the more liable it is to be run over by truck wheels, etc. Air lines should be so planned that as little bending of hose will take place in use as possible. Sharp bends definitely shorten hose life.

From this, the importance of using proper hose racks is apparent. The man who simply hangs hose over a peg or a hook invites trouble. Before placing on the rack, hose should be properly cleaned both inside and out. Clean hose has longer life, and also gives better service. Daily cleaning is not too often, in addition to cleaning each time hose is put away.

Paint spray hose should be kept clean both inside and out. Outside cleaning is sometimes neglected by those who properly clean the inside. Flexibility of hose is reduced when finishing materials are allowed to dry on the exterior. Allowing finishing material to dry and then pulling it off will sometimes cause the rubber cover of a hose to be damaged. A rag dampened with solvent can be employed to wipe material from the outside of the hose. This should always be done before material has fully hardened. It soon becomes a habit, and takes very little time.

At the end of a paint-spraying job, finishing material still in the fluid hose can be driven back into the tank by application of air, leaving only what clings to the inside. The hose may then be cleaned out by running solvent through it again and again. The solvent may be drained out of the hose in turn by hanging it up by one end. If preferred, air can be blown through it until it is judged to be dry. If a cool and dark storage area for hose can be provided, that is best.

Cleaners Available

Regular hose cleaners can be obtained from some manufacturers of spray gun hose. One type of hose cleaner consists of a cylinder that can be filled with solvent. The device is provided with a mounting bracket, so the cylinder can be attached to the spray booth or in any other convenient location, with its axis vertical. It has a connection at the bottom for the hose to be cleaned, and one at the top for an air line. The solvent is forced through the hose under pressure, flow being controlled by an adjustable valve. When the solvent has all passed through the hose, a strong blast of air automatically follows, cleaning and drying the hose of both paint and solvent.

Never under any circumstances leave paint standing in hose for more than 18 to 24 hours without draining it, and never allow paint to dry in a hose after it has been temporarily taken from service. Dried paint particles coming loose will later stop up the air cap on the spray gun, or will be carried onto surfaces being finished to degrade the finish, or both.

Use Proper Fittings

One should never use makeshift methods of shutting off air in a hose. It should be unnecessary to even mention that bending hose double and holding it tightly gripped in the hand to shut off air is highly destructive to hose. Yet, one sees it done in many places. There are special hose connectors provided by some spray gun manufacturers which have an automatic integral valve. When the connector is taken apart (and this is done with a simple twist) the valve automatically shuts off the air.

Such hose couplings are far ahead of make-shift devices sometimes used, in regard to both economy and efficiency. They allow no air leaks whatever, and therefore reduce costs for air. They cannot snag the hands or fingers as wires on makeshift couplings sometimes do. With a quick-detachable hose connection, one spray gun can be removed and another immediately attached. Both spray guns and other air tools can be used interchangeably from a single air line, if desired. The arrangement prevents the hopeless tangle of duplicate air hoses found in some places.

WOODWORKING manufacturers should follow closely the suggestions of the adhesive man for best results. This is especially true with new adhesives.

Responsibility for Good Gluing

Good gluing results from the combined efforts of adhesive manufacturer, the woodworker, and the utimate consumer. Tom Perry, the plywood prophet, shows how all three fit into the picture.

by THOMAS D. PERRY

This discussion will be directed, chiefly, toward the resin adhesives, developed during the last twenty years, and fast becoming the widely approved and used glues for top quality woodwork. This discussion, however, will be against the background of the more familiar wood glues, animal, vegetable, casein and soybean, which still have important uses, and thus will provide useful and illuminating contrasts.

The Glue Man's Responsibility

One of the principal parties in the responsibility for good gluing is the company that combines the essential ingredients into a merchantable product, which has reasonable storage and transportation stability: and which can be readily utilized by the purchaser in a well equipped woodworking shop.

When technicians in the research laboratories of an adhesive manufacturer succeed in uncovering a new product with promising adhesive qualities and in a favorable cost range, it is studied and evaluated in the laboratory. Ingredients and techniques are explored to determine the optimum conditions for successful use. Complete and careful records are maintained for detailed comparisons and ultimate conclusions. It is by no means certain that a product that performs well under laboratory conditions, will be equally effective in the factory, where the workmen may have little appreciation of scientific requirements. It is not even certain that the proposed product can be made by the supplier, in quantity, with assurance of reasonable uniformity, of practical storage stability, and with simplicity of ultimate use.

These two major uncertainties are further explored in what are called pilot plant tests. Sufficient quantities are made to determine practical manufacturability. The product of these pilot plant runs are sent to prospective users, where the management are eager to co-operate in finding better glues and demonstrating improved gluing methods. Factory operations in using these proposed adhesives are carefully supervised by laboratory representatives, but the actual work is done by factory workmen. In almost every instance new facts are discovered in these pilot plant demonstrations. They may be favorable or may show limitations that require further laboratory work.

Months or years may elapse while this laboratory and pilot plant foundation is being laid. Except in serious emergencies, such as military requirements, haste may be a handicap of consequence in such developments. Durability and aging tests are important, storage stability is essential. Accelerated and intensive tests, while informative, leave much to be desired.

Reconciling such tests with normal behavior demonstrates many inconsistencies. Such a course of procedure, in developing a new adhesive, is time consuming and costly, but it is the only safe way. The manufacturer and supplier of the new glue realizes his responsibility to the eventual user of his product. He must also safeguard the profit and demand factors of the product he proposes to sell.

Adhesive Testing

Few users and purchasers appreciate the "spade" work that must precede the offering of a new adhesive to the trade. Good adhesives do not happen, although in rare occasions they may be discovered by accident.

It is usually true that a new adhesive has some operating requirements, which differ from those possessed by the older product which it is expected to supplant. The supplier recognizes these differences and realizes that it is necessary to make them clear to the prospective user by furnishing operating instructions. The reasons for these operative requirements have been learned the hard way, and the supplier is anxious to make successful applications as easy as possible. These operating instructions should never be construed as an attempt to dictate to the user how he should run his factory; they are always intended to be helpful and constructive.

By this time the glue maker, or supplier, has invested many thousands of dollars in developing a new glue, and is duty bound to do everything possible to help the user obtain satisfactory results. The maker's requests and instructions are reasonable, sincere and dependable.

It is unfortunate that some users are prone to use a new product according to their own former methods, and are likely to attribute any and all failures to "bad glue". This is obviously unfair, but it is by no means a rare occurence.

It is, however, an imperative obli-

(Continued on page 59)

TRAINED men, good tools, and adequate controls are musts for proper drying.

More Seasoning Specialists Are Needed in the Industry

Too often the yard man is handling the kilns on a part-time basis, and the charge of lumber proves it after it has gone through fabrication. The need today is for specially trained men to handle the raw material investment at its most vital point—drying. Part Two.

by PAUL GRAHAM

The right kind of man can be made into a seasoning specialist by giving him plenty of responsibility and letting him know specifically just what results are required. The job cannot be done in a day but will be the result of much hard work and digging out solutions to problems as they arise. The trainee should not only get to know his kiln and how to control drying schedules for the various species and thicknesses, but he should know every stick of lumber in the yard, as to size, species, quantities, and moisture content. Repetition and proper application will accomplish much in a year's time.

Initiative Pays Off

A man properly suited as a seasoning specialist will soon set up his own records and routine to save time, to better control his kilns, and to accumulate valuable reference information for future use. This effort should be directed into an orderly arrangement of monthly, weekly and daily duties with organized check lists to prevent overlooking small details. Complete records of kiln charges are kept usually without management suggestion as a protection device as well as for information on kiln performance.

These records should also be guided to accumulate kiln performance, drying schedules, rate of drying, control settings, and other information that may be analyzed and consulted to improve drying schedules or to arrange special treatments suited to kiln peculiarities, various species and moisture contents as well as to determine individual kiln efficiency. The seasoning specialist who conscientiously keeps records of this sort soon gets to know the drying characteristics not only of different species but also lumber of the same species received from different sources in various parts of the country.

It is of prime importance that kiln drying records be kept current and in such a manner that if the regular operator is absent because of sickness or other reasons, necessary information will be available to carry on the operation of the dry kilns without interruption of the drying process of possible damage to lumber in the kilns. Management should always have some representative in close touch with the dry kiln operation and the progress of the charge in the kilns.

While it is not advocated that the seasoning specialist be put in charge of the yard, as dry kiln operation is a full time job, he should have full control of the selection of his kiln sample boards which are the governing factor in the dry kiln operation. He should also have full control of thickness and species separation and where possible, selection for moisture content. Stacking should also be under his direction to insure stacking lumber properly for correct circulation of air and support required to prevent sagging boards.

Management of small plants contend they do not operate a sufficient number of dry kilns to employ a seasoning specialist or to set up kiln drying as a separate department. While this may be true in essence, there are many places in a small plant operation where a man with a good wood technology background can be used to advantage and supplement his kiln drying function at a profit. He should not be given too many jobs, however, or he will have to cut down on his sampling and testing and the kiln run may get away from him.

The seasoning specialist should know just how the lumber he is drying is to be used in the manufacture of company products. This end-use information will be used as a guide to arranging drying schedules. All drying schedules can be accelerated according to strength and machining properties required for individual parts. Thus, increased kiln production can be developed by speeding up schedules on those species and sizes where strength is not a primary consideration.

Control Necessary

To enable him to keep all his kilns full and running at all times, the seasoning specialist must have full control of loadings and unloadings. He should be given complete advance information of what lumber will be required for plant operation and given authority to schedule kiln car loadings in the yard far in advance of the date they will be needed for kiln drying. This permits management to receive projected schedules for study and coordination with the master production program in ample time to make any changes necessary before the lumber is in the kiln.

A furniture manufacturer who discussed the subject of training seasoning specialists with the writer expressed an opinion that while the end result might justify the means, he feared the trainee might put his plant out of business while he was getting his kiln drying experience. If the training program is attempted without proper planning or supervision, such might be the case. It has been demonstrated, however, that where the training is intelligently planned and instruction is well thought out and applied, efficient seasoning specialists can be developed in a surprisingly short period of time.

Take for example the experience of a large furniture plant in the midwest. Thoroughly disgusted with results obtained from their dry kiln operation, management of this company requested a college with a strong

(Continued on page 56)

FIG. 1. COMPLETE DESCRIPTIONS of each job is a job evaluation keystone.

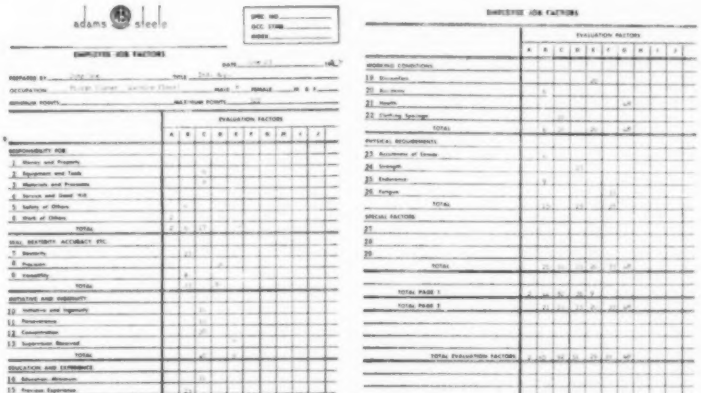


FIG. 2. JOB FACTORS tell at a glance what qualifications the employee has.

Job Evaluation

Wage freezes, price controls and other present day business problems make proper job evaluation and analysis a must if one is to have adequate records available.

by J. S. WALTERS
President, Adams-Steele, Inc.,
Chicago, Ill.

Management engaged in the Woodworking Industries like many other commercial and industrial organizations are face to face with the problem, "What is our position now that wages are frozen and wage controls have been enacted?"

A state of confusion exists in many organizations. They are fearful of what can happen to their key personnel and what the attitude of Control Boards authorized to administer the act may be. Many who at one time had established Defensible Wage Plans but who since the discontinuance of the former controls had not kept their plans in force are confused as to what to do next. Those who had established and maintained a Defensible Wage Structure will, perhaps with minor changes, be prepared to keep step with the new Federal requirements. Alert management has learned that high wage rates per se, by themselves, do not insure employee loyalty and efficiency . . On the other hand moderate pay rates do not always mean poor moral and sub-standard production. The greatest danger lies in wage inequities—this is the real cause of dissatisfaction.

Regardless of whether an individual works in the plant or in the office he becomes disgruntled when it is found that a person who is doing the same kind of work is being paid more than he receives. The amount of this difference is not important.

No one has yet succeeded in establishing an absolute method of wage determination. There has been no way of concluding, for example, that a power jointer, at any time, any place and working for any wood plant should receive a certain wage rate. One reason is because nominal wages must be distinguished from real wages. A dollar an hour in Indiana may purchase less than a dollar an hour in the Carolinas; though the nominal wage is the same, the real wage is different.

Fair Plan Needed

Managements, recognizing the importance of and need for a fair and defensible plan to measure job values in the plant and office, plan a job evaluation study. They desire, first, to determine the correct value of each job; second, to establish proper minimum and maximum rates for each; third, through merit rating to determine how well each individual is fulfilling the requirements of the job. Job evaluation is a technique for determining the difference in actual job requirements as expressed in terms of the elements which go to make up the job.

The procedure of job evaluation may be outlined in four comparatively short statements as follows: (1.) To prepare job descriptions, defining the duties and responsibilities of all jobs. (2.) To make a reliable comparison of jobs on the basis of relative importance, difficulty, responsibility, and working conditions so as to provide for a more equitable distribution of the existing payroll in accordance with intra-company comparison. (3.) To provide a means for comparing the job content as far as possible or practical with jobs common to the company and to outside concerns, so company rates can be tested against general market rates. (4.) The establishment of administrative procedures and techniques

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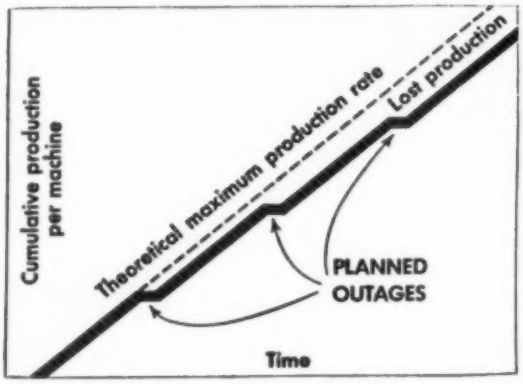
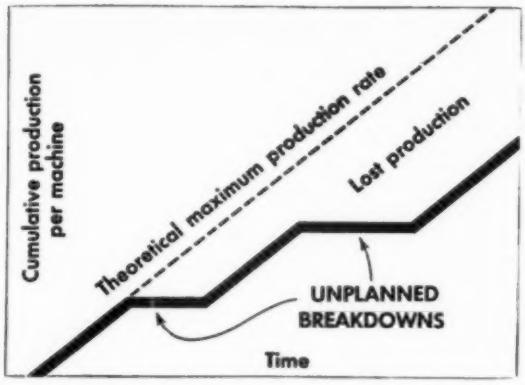


PLANNED outages reduce the amount of lost production.



UNPLANNED breakdowns cause more than time lost.

Now, Productive Maintenance

Anticipating machine problems and repairing before the machines break down is the latest method of boosting production. Here's how the system works as established by one of the largest industrial operations in the country. The plan can be used regardless of plant size.

Management has in many cases paid lip service to the importance of the job being done by the maintenance man in helping to keep equipment in good working order. But too often the job of maintenance is looked upon as a necessary evil—something to be done only when the occasion arises.

This negative attitude has failed to recognize in maintenance its positive productive potential. For, properly handled, maintenance can be a constructive factor in increasing productive output. Looked at in this way, maintenance takes on new significance, as an answer to the nation's industrial mobilization needs. More than routine preventative maintenance, it becomes, truly, *productive* maintenance, capable of creating added output without additional machines.

Believing that productive maintenance offers management a new tool for extending production capacity beyond existing limits, not just keeping those limits as they stand, the General Electric Company has developed a productive maintenance program that can be applied to virtually every type of industry in the country.

As a new concept applied to industrial operations, productive maintenance has as its goal the giving of the greatest possible aid to the plant as a whole so that it may achieve a level of production as close to a theoretical maximum as it is possible to come. Through far-sighted, long-range planning, productive maintenance anticipates the problems of unwanted production breakdowns and acts to minimize the probability of their happening. It is an approach to maintenance that no longer regards it as the step-child of production, but rather as something that can work hand in hand *with* production.

Program Components

What, then, goes to make up a sound productive maintenance program?

An effective productive maintenance program consists of (1) an *adequate staff* of trained maintenance men, armed with (2) the *tools* needed to perform properly the functions of (3) *regular routine checks* of operating equipment, and (4) *planned outage* of this equipment at regular scheduled intervals. Rebuilding and modernizing machines during time of planned outage is done readily with parts from (5) *an adequate stock of mechanical and electrical spare parts.*

Management must provide for an adequate staff of trained maintenance men, must make available a budget sufficient to face up to the facts of the situation, and must provide tools and instruments as modern and functional as those supplied production crews. With the men, tools, and money it needs, productive maintenance is ready to go to work. Since the goal is to get the most out of the machines in the plant, it is necessary to know the worth of every machine *to* the plant, how it is expected to perform, and how much attention it demands from the maintenance man. For this purpose, a card index system, recording brief biographies of every piece of equipment, is kept for handy reference.

The card index system is an invaluable aid in the day-to-day, routine maintenance measures that are, of course, a vital part of the productive maintenance program. The machine biographies guide workers in carrying out preventive maintenance projects, such as periodic inspections, routine cleaning, bearing maintenance, varnish treatments, oiling and the like. Such preventive measures are common enough in most companies. In a productive maintenance program, however, they are conducted under a fixed plan. With the card index as the record of past procedures, a definite schedule for periodically handling preventive problems can be readily worked out and adhered to, with a minimum of time and effort.

Important as the preventive activities are, they are capable, as the term implies, only of *preventing* machines from doing less than they usually do. But the aim of productive maintenance is *added* production, surpassing the limits of output that are already achieved. This means, in effect, getting machines to work more.

(Continued on page 57)

This moulder does its own *Rough Planing too!*

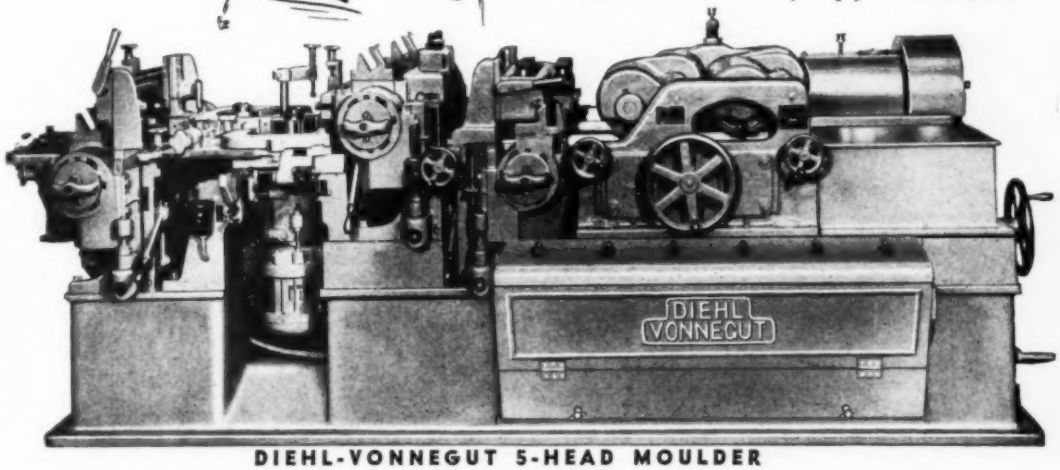
Diehl-Vonnegut 5-Head Moulder

With the Model 512 Diehl-Vonnegut Moulder, chances are you can *eliminate* a separate rough planing operation.

For the additional head of this moulder, the one which makes the first cut, is a *bottom head.* This undercut presents an accurately sized surface to the solid bed of the machine.

Thus, with the Model 512, you secure *rough planing,* to prevent worming of the stock, plus the fast, accurate moulding found in all Diehl 4-head Moulders. Because, except for the extra bottom head, this machine is set up and operated like a standard 4-head machine.

Compare the cost savings, compare the advantages, secured with a Diehl-Vonnegut Model 512 Moulder in the handling of all stocks from the smallest up to 12 inches, and you'll see why the industry is ordering this long-proved Moulder in greater and greater numbers. Why not write today for complete information, or see your Diehl Dealer? This moulder may help *you* cut costs, too.



DIEHL-VONNEGUT 5-HEAD MOULDER

On the Banks of the Wabash

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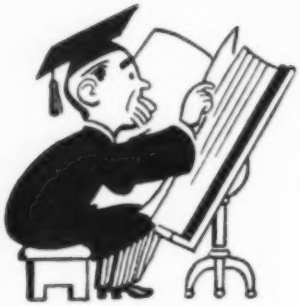

Lumber Grading Quiz

How many of these questions can *YOU* answer without sneaking a peak at the answers given below. They were prepared for student use by one of the outstanding educators in the industry who has come up with a fair share of right answers in business, too.

Part Two

by NELSON C. BROWN
Dept. Forest Utilization
New York State College of Forestry

14. *Question. What is meant by the expression No. 1 & Better or No. 2 & Better?*

Answer. This generally means that the car or shipment consists largerly of No. 1 and contains very little of better grades. The Same is true of No. 2 and Better or other similar expressions. In the case of hardwoods, No. 2 Common and Better is the same as log run which means the full run of the logs, excluding all grades below No. 2 Common, according to the standard hardwood rules.

15. *Question. What is the significance of grade and trade marking of softwoods?*

Answer. This is to establish the grade as inspected at the mill so that there can be no mixing or changing of grades from the manufacturer through the wholesale or commission man to the retailer. It also establishes the species and the association mill which produced it. In effect, it is a certificate of quality for each piece so marked.

16. *Question. What is a liner?*

Answer. A liner is a term sometimes applied to a board or timber which is on the line between two grades and may on casual inspection be allocated to the grade above or below. Actually there is no such thing. The term is not found in any of the grading rule books. Every board must fit the grading rules.

17. *Question. What is meant by "sweetening the grades"?*

Answer. Some sellers purposely give a grade of lumber somewhat better than specified please the customer and depends upon in the sales contract. This is done to the relations of the buyer and seller.

Usually this is done to curry favor with the buyer, but it causes later dissatisfactions when the same customer has occasion to buy a standard grade and has the effect of breaking down industry standards.

18. *Question. How does one use the grading rule books?*

Answer. Those familiar with grading rules theoretically do not need any instruction. Actually graders are constantly checked at the mills. However, to the uninitiated, one must first determine the species of lumber to be graded. Then he must determine its size and decide in what category in the grading rule book each board or timber fits. One must become very familiar with the grading rule books before this can be done. It requires years of experience to learn how to be a lumber grader, and one must be familiar not only with all the grade descriptions included in the rules for the particular species involved, but with the size and other general provisions that are applicable to all grades.

19. *Question. What lumber is graded on the best or worst face?*

Answer. In softwoods, the grade of 1″ lumber is determined from the better or face side of each piece except when special workings are involved. For example, the grading surface or face in standard matched flooring is the wearing surface; in drop siding, ceiling, etc., the grading face is the patterned surface. If surfaced S 1 S, it is graded from the surfaced side. Dimension and Timbers (2″ and over in thickness) are graded on all four faces, which in effect means that the worst face governs the grade. In hardwoods, the grade is determined from the poorer side of the piece except when otherwise specified.

20. *Question. What is meant by the density rule?*

Answer. The density rule provides a means for

(Continued on page 54)

If You Want To Cut Costs

YOU CAN ADD THIS UP **fast**

DRIVES FASTER—*SAVES ASSEMBLY TIME*
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+ SAFER TO USE—*FEWER REJECTS*
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Stowell Screw Co., Ltd.
Montreal, Canada

One Coat Lacquer System

This article, by a practical finishes man, shows how a one coat lacquer system can be set up in a plant for a production line system. All phases of the operation are taken into consideration.

by J. G. MC COLLAM
Period Furniture Co.
Mishawaka, Indiana

In finishing radio and television cabinets the general practice is to apply two or more coats of lacquer if the finish is to be rubbed. The principal reason for this is the prevalent use of comparatively low-solids (20 percent to 25 percent) lacquers. Higher solids lacquers have usually poorer cold check resistance and are ordinarily avoided in radio and TV cabinets. However, one coat of high solids (27 percent to 35 percent) lacquers are frequently rubbed on other types of furniture.

The necessity to develop a finishing procedure that incorporated rubbing one coat of lacquer resolved itself into the following conclusions: A lacquer that had certain characteristics was required; it had to flow out sufficiently well to have the minimum orange peel. Otherwise, excessive rubbing would cut through the finish. On the other hand, it could not be high in low volatile solvents. If it were, overnight air drying might not suffice. The humidity must be maintained at a maximum of 35 percent.

The spraying technique had to be such that the film would be deposited on the surface with as low a viscosity as possible, but with as much of the volatiles evaporated as possible. This entailed the use of the proper material nozzle, air nozzle, and needle valve as well as spraying method.

The lacquer finally selected for this operation meets the following specifications:

Solid contents	25 percent
Viscosity	24-26 seconds as measured with a No. 4 Ford cup
Sheen	50 on a 60° Glossmeter
Print resistance	Not less than 2-lbs. per square inch
Cold Check resistance	6 to 10 cycles.

The spray gun the department uses to spray this lacquer is a Binks No. 19 with a 63A material nozzle, 63P air nozzle and No. 16 needle valve. The air pressure is 65-lbs. and the fluid pressure is 18-lbs.

First Step

The cabinets are flat cut mahogany veneer with mahogany solids. After extremely careful sanding in the white, the cabinets are coated with NGR stain, wash coat, sanded, filled

(Continued on page 40)

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MARCH 19, 1951

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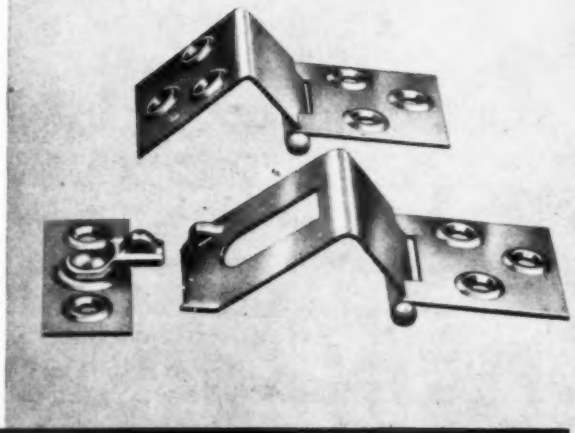

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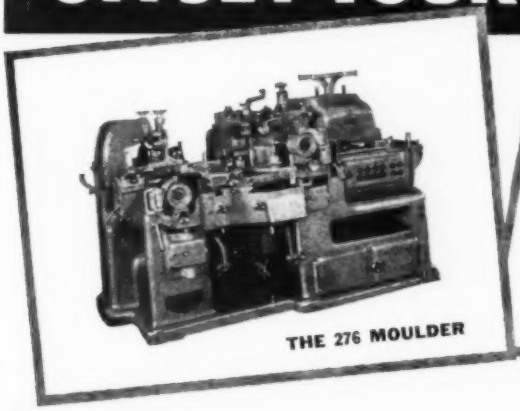

THE 276 MOULDER

THE 202 RIPPER

FOR EXAMPLE —

"Mattison Ripper earned 3 times its cost the first year."

"Mattison No. 202 Ripper saved $150.00 in useable material in a month."

"The 202 Ripper will pay for itself in a very short time."

Two Mattison 5-Head Moulders installed. Production doubled — work comes through smoother — joints are tighter — machines will pay for themselves in a relatively short time.

After installing a Mattison No. 124 Automatic Stroke Sander — "Our only regret is that we didn't invest in this equipment some years back, as the elimination of time and labor saved in the preparation of flat surface will offset our investment in a very short time."

"Cost records show we saved enough money each year with our 57–F–54 inch Lathe to buy a new machine!"

Send for latest circulars containing complete information on these various Mattison Machines.

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Please sent for Circulars on: Moulders ___ Rip Saw ___ Turning Lathes ___ Sanders . . . Power Stroke ___ Hand Lever ___ Hand Block ___ Variety ___ Edge ___.

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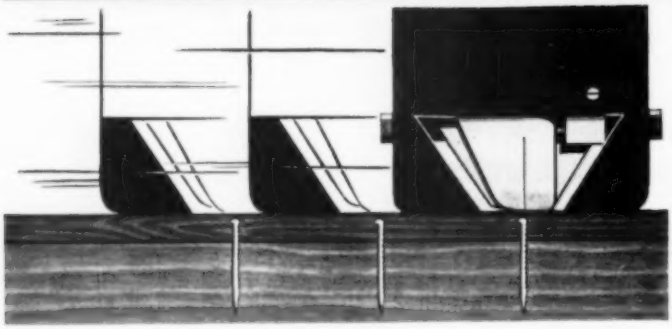
ROCKFORD · ILLINOIS

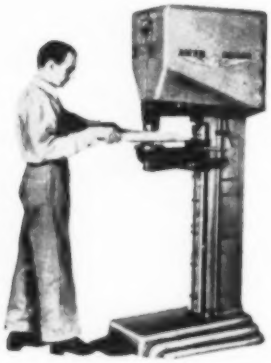
If It's Speed You Need



You need an **AUTO-NAILER**

Television Cabinets • False Fronts • Banding • Seat Bearers • Skids • Crates • Luggage Valances • Molding • Umbrella Ferrules • Picture Frame Sprigging • Eliminating Clamps on Glue Joints • Starting Nails • Hinge Pinning • Toys • Novelties • Metal "T" Molding • Nailing Masonite PRESDWOOD • Upholstered Furniture Frames . . .

Auto-Nailer does the work of from 3 to 5 men hand nailing. It puts out more work . . . faster . . . better. Auto-Nailer makes, drives and sets 3 nails a second—in all materials. No nails bent, dropped—no work split—every nail becomes a part of the product. Has quick, accurate settings for nail length and countersink.



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SPARTAN, for heavier work;
CRUSADER, for lighter work.

SEND US SAMPLES OF YOUR WORK FOR NAILING
—NO OBLIGATION.

THE AUTO-NAILER CO.
267 MARIETTA ST., N. W. • ATLANTA, GEORGIA

(Continued from page 38)

and allowed to dry overnight. Then comes the first special handling aimed at the rubbing-one-coat finale.

The operator in the sealer booth first coats the top of the cabinet, then the front sides, then the top again. Each coat on the top is a full wet coat, resulting in a dry film thickness of over 2 mils. After the sealer has dried for three hours, it is sanded, the workman taking care to leave the top of the cabinet as smooth and level as possible. This operation is done with No. 220 aluminum oxide paper on a portable orbital-motion air sander. Any moulded, carved or grooved surfaces are rubbed with No. 2/0 steelwool. The cabinet then goes to the sealer patchers for necessary burn-ins and color patching.

Next, the operator in the lacquer booth sprays a full wet coat on the top, front and sides, then on the top again. When the cabinet leaves this booth there is as heavy a wet coating on the top as is reasonably practicable; the dry film is a full three mils in thickness.

The lacquer dries overnight at an average temperature of 750° F. and a relative humidity of less than 35%. The top is rubbed with No. 360 wet-or-dry abrasive paper and a solution made up of ten parts mineral spirits to one part of paraffin oil. In this operation a 2-pad reciprocating air sander is used. The top, front and sides are then polished with No. 4/0 steelwool. The film thickness, after rubbing, averages two mils.

After trimming, a final inspection and patching, the cabinets are packed and shipped.

WOODICTIONARY

The excess of the amount of lumber actually sawed from logs over the estimated volume or log scale, usually expressed in percent of the log scale.
Dwg. So. Pine

JAMESTOWN
HOT PRESSED
Multiplied Strength
RESIN BONDED
PLYWOOD
Selected Striped Mahogany
American Black Walnut
Famous Adirondack Mountain Birch for House Trailers, flush door plywood and GUARANTEED WARP-PROOF cupboard doors
cut to your exact sizes Furniture, TV and Radio Cabiner Plywood
Combed Grain White Oak
Limba Famous Blond Wood
Primo Vera for Store Cases and libraries
all other popular woods

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available for your convenience in

35 WAREHOUSES

strategically located throughout the United States

standard sizes in high quality plywood panels carried in stock

WRITE FOR OUR NEAREST JOBBER WAREHOUSE

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Emblem of BUSINESS CHARACTER

Rice Leaders of the World Association

Represents High Standing in NAME - PRODUCT - POLICY

JAMESTOWN VENEER and PLYWOOD CORPORATION

Executive Offices · · · **Jamestown, 2, N. Y.**

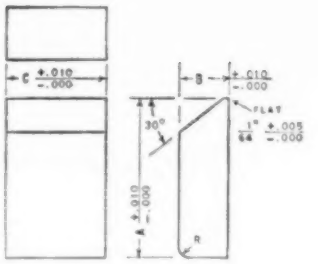
New Standards for Carbide Tools

In the July issue of WOOD and WOOD PRODUCTS an article concerning "Carbide Standards" on page 34 and 63 contained two charts on saw tip standards as developed by the Firth-Sterling Steel & Carbide Corp. The author, Mr. R.D. Brooks, F-S Development Engineer and the editors feel that the charts did not give a clear enough picture of these new carbide tip standards. Therefore, these clearer reproductions are presented herewith for your files. Reprints will soon be available of the article and the standards.

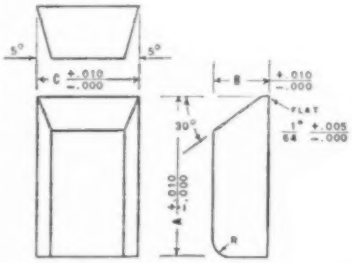
STOCKED IN GRADE HC AND H8

DIMENSIONS				TIP NUMBER		STD. PKG. QTY.	DIMENSIONS				TIP NUMBER		STD. PKG. QTY.
A	B	C	R	STYLE 1	STYLE 2		A	B	C	R	STYLE 1	STYLE 2	
		.065	.025	W-100	W-200	100			.150	3/64	W-150	W-250	100
		.080	.025	W-102	W-202	100			.165	3/64	W-152	W-252	100
		.100	.025	W-104	W-204	100			.180	3/64	W-154	W-254	100
1/4"	060°	.115	.025	W-106	W-206	100	5/16"	095°	.195	3/64	W-156	W-256	100
		.130	.025	W-108	W-208	100			.215	3/64	W-158	W-258	100
		.145	.025	W-110	W-210	100			.235	3/64	W-160	W-260	50
									.255	3/64	W-162	W-262	50
		.085	.032	W-116	W-216	100							
		.100	.032	W-118	W-218	100			.165	3/64	W-166	W-266	100
		.115	.032	W-120	W-220	100			.180	3/64	W-168	W-268	100
		.130	.032	W-122	W-222	100			.200	3/64	W-170	W-270	100
9/32"	076°	.165	.032	W-124	W-224	100	11/32"	125°	.220	3/64	W-172	W-272	50
		.160	.032	W-126	W-226	100			.240	3/64	W-174	W-274	50
		.175	.032	W-128	W-228	100			.265	3/64	W-176	W-276	50
		.190	.032	W-129	W-229	100							
		.215	.032	W-130	W-230	100							
		.100	3/64	W-132	W-232	100			.170	3/64	W-180	W-280	50
		.120	3/64	W-134	W-234	100			.205	3/64	W-182	W-282	50
		.135	3/64	W-136	W-236	100			.265	3/64	W-184	W-284	50
		.150	3/64	W-138	W-238	100			.300	3/64	W-186	W-286	50
9/32"	093°	.165	3/64	W-140	W-240	100	3/8"	156°	.335	3/64	W-188	W-288	50
		.180	3/64	W-142	W-242	100			.365	3/64	W-190	W-290	50
		.195	3/64	W-144	W-244	100			.400	3/64	W-192	W-292	50
									.460	3/64	W-194	W-294	50
									.530	3/64	W-196	W-296	50

STYLE 1



STYLE 2



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Dependable DIMENSION *Stock*

Mansfield Dimension Stock is manufactured to meet your most exacting requirements. The Hardwoods and Pine are selected from the 40,000,000' production of our two band mills. The lumber comes from Mansfield timberlands all on selective cutting perpetual yield basis.

The Mansfield Dimension Plant with its modern machinery, trained manpower and supervision and long experience in the field provides the "know-how" that means complete satisfaction and lower production costs.

We specialize in glued-up panels and furniture dimension, either semi-finished, or moulded, equalized and tenoned. However, our plant is equipped and available to produce interior trim, stair treads and risers or practically any other item to meet your requirements. Send us your specifications. Our prompt quotations and samples will convince you that Mansfield Dimension is your best buy today.

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Band Mills: Zwolle and Winnfield, La. . . . Dimension Plant: Zwolle, La.

WHAT DO You INSIST ON in HARDWOODS —

Good Manufacture?

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Flat Stock?

Natural Texture?

Even Grain?

Cutting Value?

Uniform Quality?

If so, depend on Fordyce, where these prime essentials to your own production are known, understood and *supplied* in your order for any or all of the following:

Red & White Oak — Red & Sap Gum

Ash — Hickory — Cypress — Elm

Furniture Semi-dimension

Thresholds

Solid and Glued-up Panels

Industrial and Wagon Oak

•

Over Sixty Years' Service to The Trade

FORDYCE LUMBER COMPANY

FORDYCE, ARKANSAS

Since 1889

Names... Events

Deaths

NORMAN LEROY CARY, Promotion Manager of the Western Pine Association in Portland, Oregon, until his retirement in 1947.

WILLIAM C. JOHNSON, Executive Vice President of the Allis-Chalmers Manufacturing Co., Milwaukee, Wis.

NELSON S. TAYLOR, nationally known hardwood lumber executive and student of the life and times of George Washington, died in Buffalo, N. Y.

JOHN L. EXBY for many years legal representative of the National Oak Flooring Association Southern Hardwood Producers, Inc. and National Lumber Exporters Association, Memphis.

ARTHUR E. LANE former president National Wholesale Lumber Association and partner in Arthur E. Lane Mill Service, New York.

J. Ross HOLCOMB, SR. pioneer veneer man and president of Hobac Veneer & Lumber Co., Memphis.

W. J. BAKER, Chief of Research for the Oregon Forest Products Laboratory at Oregon State College.

DEAN JOHNSON, President, and his brother ERNEST JOHNSON, Vice president and Sales Manager of C. D. Johnson Lumber Corp., Portland, Oregon, died August 24 in a giant airliner crash near Oakland, Cal. R. P. RICHARDSON, manager of the firm's Toledo operation, was fatally stricken during funeral services held August 28 for Dean and Ernest Johnson.

Retirements

J. R. KEIG, retires as Manager of the Kirby Lumber Co., Tie Dept., Silsbee, Texas, after twenty-nine years' service.

B. N. JOHNSON, Manager of Procurement, Richmond, Indiana, office of the Wood Preserving Division of Koppers Company, Inc.

W. C. BAILEY, vice president in charge of the United States Plywood Corp. West Coast operations, has retired.

Promotions

CARROLL D. WELLER is appointed to the sales staff of the Veneer Dept. of The Mengel Co., Louisville, Ky.

SHELDON T. DAHL is named West Coast Manager of the American Cyanamid Company's Industrial Chemicals Division and Plastics and Resins Division in New York, N. Y.

JOHN C. FLEMING has been named E. L. Bruce Company's assistant advertising manager. He is replacing FRIEL MULLINS, who has been transferred to the Terminix Division.

ROBERT E. MITCHELL is promoted to Field Sales Manager of the Cummins Portable Tool Division of the Cummins-Chicago Corp.

J. D. LELAND is elected to the new post of Executive Vice President, and J. H. KENNESSON to a Vice Presidency of The Long-Bell Lumber Co., Longview, Wash.

M. B. PENDLETON, former owner and publisher of Wood Products and Barrel & Box & Packages has joined the staff of National Hardwood Lumber Association as Assistant to the Manager, JOHN B. MCCLURE.

(Continued on page 72)

Is Your Wood Gluing Department a Production Bottleneck?

Now... discover

Thermatron

HIGH FREQUENCY GENERATORS AND EQUIPMENT

BOND WOOD PERMANENTLY IN A MATTER OF SECONDS!

THE OLD WAY at Royal Wood Products Co. Until the wood gluing department was streamlined by installation of THERMATRON equipment it retarded allover production. Two men worked on one assembly, which involved timetaking manual adjustment of clamps, including protective measures to eliminate clamp damage on expensive veneers.

THE NEW WAY! A battery of jigs each equipped with a 500 watt THERMATRON generator, at plant of Royal Wood Products Co. Machines bond wood assemblies in first step in manufacture of TV cabinets. Panels are firmly glued in 20 seconds and ready for next step immediately.

THERMATRON, product of a pioneer in the electronics industry, may revolutionize your wood gluing department just as it has recently done for Royal Wood Products Co., Brooklyn manufacturer of fine television cabinets.

THERMATRON High Frequency equipment sharply reduces unit production time, floor area and manpower needed . . . eliminates expensive clamps and most rejects. And, THERMATRON frequently permits construction that reduces the number of reinforcing blocks which only add dead weight and bulk!

Installations of THERMATRON generators and equipment are available under one contract and one responsibility, because Radio Receptor Co. designs and builds the required jigs and fixtures right in its own shop. In many cases the initial cost of THERMATRON equipment isn't much more than the investment in hand clamps it replaces.

For "non-headache" wood gluing outline your problems to us today. Our engineers will gladly make recommendations without obligation . . . And be sure to request our latest bulletin No.

Standard stock generators available from ½ KW to 6 KW output, operating on 110 or 220 Volt lines. Special units supplied for unusual applications.

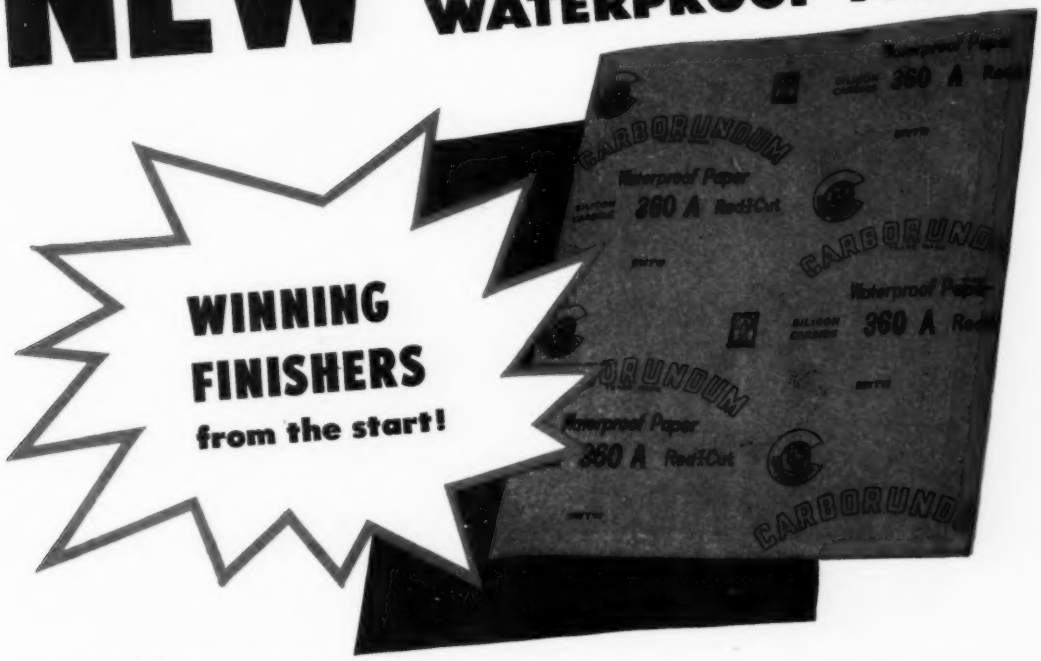
*T. M. Reg. U. S. Pat. Off.

Thermatron division

RADIO RECEPTOR COMPANY, INC.

Sales Dept.: 251 W. 19th St., New York 11, N. Y. • Factory: 84 N. 9th St., Brooklyn 11, N. Y.

NEW Red-I-Cut WATERPROOF PAPER



New "Red-I-Cut" Waterproof Paper by CARBORUNDUM has been enthusiastically welcomed in finishing rooms everywhere. "Sharper, lasts longer, more flexible"..."faster cut, better finish" ..."best waterproof we ever had"... these shop comments are typical of many.

It has been definitely proved that "Red-I-Cut" Waterproof Paper consistently out-performs other products in finishes produced. On production runs it has shown as much as *50% longer life*, and through its faster cut has effected substantial time savings in the over-all finishing operation.

Soaking is eliminated with "Red-I-Cut" Paper. Just take it from the pack—apply lubricant—and put it to work!

Mail Coupon for FREE Sample!

Advertising Department
THE CARBORUNDUM COMPANY
Niagara Falls, N. Y., W 82-125

Send sample of "Red-I-Cut" Waterproof Paper for comparison with the product we are now using.

Name _____

Company _____

Address _____

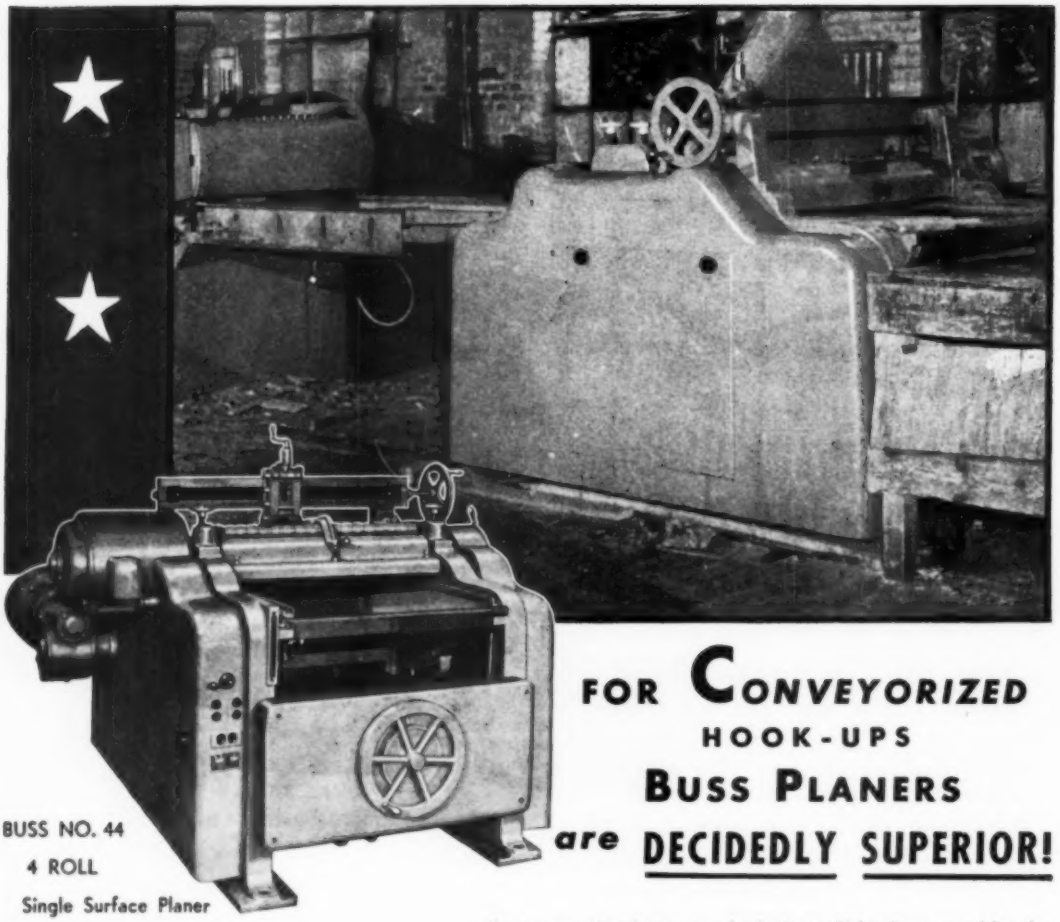
City and State _____

Ask for the RED-BACK paper by

CARBORUNDUM
TRADE MARK

"Carborundum" and "Red-I-Cut" are trademarks of The Carborundum Company, Niagara Falls, New York

W2-125



BUSS NO. 44
4 ROLL
Single Surface Planer
Capacities: 8" x 30", 36" and 40". Feeds up to 105'

The BUSS line contains the ideal planer for every production set-up—single surface planers in various capacities, a cabinet double surface planer and the No. 55 double roughing planer. Bulletins on request.

FOR CONVEYORIZED HOOK-UPS BUSS PLANERS are DECIDEDLY SUPERIOR!

If you are planning a rough-planing mill hook-up, consider the many reasons why it will pay you to use either a BUSS No. 44 or No. 66 Single Surfacer: First, the distance between the frames of these planers is 5 inches greater than the length of the cutterhead, which means that in either 30 inch or 36 inch capacities, they will match up perfectly with Facer Feeders of similar capacity. You don't have to pay for the larger capacity which in other planers is required to accommodate the conveyor belt. Second, the infeed rolls that receive the lumber are made of drop forged steel, 1" wide and unbreakable. Third, the side plates are so constructed that the placing of the conveyor is convenient and simplified. Fourth, the BUSS Nos. 44 and 66 are equipped with safety features that prevent damage to the planers in event of lumber jams or sudden blocking of the feeding mechanism. And in addition there are many other structural and operating superiorities resulting from our specialization in the manufacture of planers exclusively. Write for the complete facts. We will be glad to consult with you on your requirements.

BUSS
SINCE 1862
MACHINE WORKS

PLANER SPECIALISTS EXCLUSIVELY

244 EIGHTH ST. HOLLAND, MICHIGAN

FOREST PRODUCTS RESEARCH SOCIETY

F.P.R.S. Monthly Bulletin

Research • *Development* • *Production* • *Utilization* • *Distribution*

by FRANK J. ROVSEK, Executive Secretary, P. O. BOX 10, UNIV. STA., MADISON 5, WISC., SEPTEMBER, 1951

Four Important Industry Meetings to Headline Forest Products Research Society Section Activities in September and Early October

Admiral Joe Jelley, Chief of Navy Civil Engineering and Bureau of Yards and Docks Headlines 8-Feature Wood Industry Meeting at Valdosta, Georgia, October 5 and 6.

The FPRS Florida-Georgia-Alabama Section is pointing toward a record turn-out at its Fall Meeting, October 5 and 6, at the Daniel-Ashley Hotel in Valdosta.

An outstanding speaker and top-ranking officer of the Navy's Seabees, Rear Admiral Joseph F. Jelley, will address the group on a subject of national significance to the wood industry. Directing the design, construction and administration of the Navy's far-flung system of bases and stations throughout the world, valued at over 3½ billion dollars, Admiral Jelley is in the unique position of being one of several top men in the entire country who have first-hand knowledge of Navy and civilian defense needs.

In addition to Admiral Jelley, six other papers thus far have been scheduled for the meeting. They are:

Some Pressing Problems of the Lumber Producer—What Can Research Do About Them?, by Carl Brice of the Brice Lumber Co., Archer, Florida.

Factors Influencing Changes in the Production of Gum Naval Stores, by A. R. Shirley, Secretary, American Turpentine Farmers Assn. Cooperative, Valdosta.

The Solvent Recovery Process of Wood Preservation, by Monie S. Hudson, the Taylor-Colquitt Co., Spartanburg, S. C.

The N.P.A. as It Applies to the Lumber Industry, by Lewis G. Emmert, Regional Office, Department of Commerce, Atlanta, Ga.

Cruising Forests by Airplane and the Evaluation of Forest Aerial Photographs, by O. S. Willingham, School of Forestry, University of Florida, Gainesville, Fla.

T.V.A.'s Interest in Forest Products Research, by W. N. Darwin, chief.

(Continued on page 49)

Rear Admiral Joseph F. Jelley, CEC, U. S. Navy

One of the youngest flag officers in the Navy, "King Bee" Joe Jelley has pushed engineering research into lightweight and mobile construction equipment and materials to enable Seabees and Navy contractors to build bases even faster than the phenomenal speed achieved in World War II. He has spark-plugged development of improved ship-to-shore support for amphibious operations.

A native of Phoenixville, Pa., he attended Cornell, then entered the Naval Academy, graduating in 1927, eleventh in a class of 594. He is a holder of the Legion of Merit award, and an active member of many engineering and scientific organizations.

DON'T MISS THESE OTHER IMPORTANT FPRS DATES

- ★ **Sept. 27, 28—Inland Empire Section Annual Demonstration Meeting, Sandpoint, Idaho.**
- ★ **Oct. 8—Northern California Section Meeting at Eureka, Cal.**
- ★ **Oct. 26. Va.-Car. Meeting at Clemson, S. C.**
- ★ **Nov. 1, 2—Northeast Section Meeting, Boston, Mass.**
- ★ **Also Upper Mississippi Valley and Deep South Sections.**

37 Production and Research Experts to Discuss Plywood Veneer, Furniture, and Millwork at Midwest Section Meeting, Oshkosh, Wis., Sept. 19-21.

With a double-barreled program covering both production problems and research and development advancements in three important midwest industries, the Midwest Section has underway one of the most practical Sessions ever planned for either a Section or National program in the history of FPRS. Leaders in these industries, numbering 37, will get down to brass tacks on all phases of production, from the handling of raw materials *to* machines, processing *through* machinery, and finished product problems *from* the machines.

This "To-Through-and From" theme will be backed by an equal number of technical sessions on the research end.

The Midwest Section proved its ability to present a solid, informative program of interest to the foremen and superintendants as well as management and research levels with a record 450 attendance at a similar meeting at Rockford, Illinois, last Fall. The content of this meeting planned for Oshkosh is a further improvement and should draw at least one representative from every millwork, furniture, veneer and plywood plant in the middlewest from Ohio to Kentucky and Missouri and north.

The meeting will cover a three-day span, with one day devoted to each industry. Thus representatives may select the one, two or three days in which their interests lie. The meeting is not restricted to FPRS members but is open to anyone having an interest in the subject matter. The dates are Wednesday through Friday, September 19, 20 and 21 at Oshkosh, Wisconsin.

Outstanding Program

PLYWOOD — *To-Through-From.*

(Continued on page 48)

OSHKOSH MEETING

(Continued from page 47)

Papers to be presented during the session moderated by M. C. McIver, Pres. Penokee Veneer, Mellen, Wis. include: Phillip Reinmuth, Potlatch Forest, Inc., Lewiston, Idaho; Langdon Quimby, Quimby Veneer, Bingham, Maine; and Ed Larson, Larson Plywood, Sheboygan, Wisc., and Charles Norris, U.S.F.P.L.

Technical—Papers by W. E. Parnell, Algoma Plywood, Algoma, Wis.; Gerry Shuette, Thomas Ingerman Co. Milwaukee, Wis.; and Herbert O. Fleischer, U. S. Forest Products Lab., Madison, Wis. Moderator, T. R. Truax, U.S.F.P.L.

FURNITURE—*To-Through-From.* Papers by R. F. DeYoung, R-way Furniture, Sheboygan, Wis.; R. F. Wilder, the Mengel Co., Louisville; and Bill Raoul, Cavalier Corp., Chattanooga, Tenn. Moderator, J. J. Allegretti, Masonite Corp., Chicago, Ill.

Technical—Papers by Magnus L. Selbo, U.S.F.P.L., Madison; R. M. Boehm, Director of Research, the Masonite Corp., Laurel, Miss.; Armin Elmendorf, the Elmendorf Corp., Chicago, Ill. Moderator, Charles Beiger, Sears Roebuck, Chicago.

MILLWORK—*To-Through-From.* Papers by R. V. Mann, Curtis Companies, Inc., Clinton, Iowa; Carl J. Binner, Morgan Sash & Door, Oshkosh; and Carr-Adam-Colliers, Dubuque, Iowa. Moderator, O. C. Lance, Sec.-Mgr., National Woodwork Manufacturers Assoc.

Technical—Papers by G. G. Garlick, Protection Products, Kalamazoo, Mich.; Lyman Wood, U.S.F.P.L., Oscar Witt, Roddis Veneer & Plywood; Marshfield, Wis.; Ralph Boyer, Ahdawagum Div., Consolidated Water Power and Paper Co., Wisconsin Rapids. Moderator, J. J. Davis, Paine Lumber Co., Oshkosh.

Panel Of Experts On Hand

To assist in answering questions raised from the floor following presentation of papers, a panel of top experts in each of the three fields will be in attendance. They include: J. S. Tompkins, Wisconsin Knife Co., Beloit, on subject of knives, cutter heads; T. C. Mann, Ekstrom, Carlson & Co., Rockford, on woodworking machinery in general; K. R. Brown, Sherwin-Williams Co., Chicago, on paints and finishes; R. F. Blomquist, U.S.F.P.L. on glues and adhesives; and a representative of the Veneer Machine Division of Jackson Industries, Birmingham, Ala., on veneer machinery.

Luncheon Guest Speakers

George M. Hunt, former director of the U. S. Forest Products Laboratory at Madison, Wisconsin, and Dr. J. Alfred Hall, the new director, will each address the assembly at the official luncheon. Mr. Hunt is an international authority in the field of wood preservation. Dr. Hall has had broad experience in all phases of utilization.

Plant Tours

Tours will be conducted through the Bell Machine Co., C.K.L. Machinery Co., and the Morgan Co.

Send Reservations Early

Reservations can be made through the Oshkosh Meeting Committee, Ralph Casselman, Chairman; c/o Paine Lumber Co., Oshkosh, Wisc. Further information is also available through F. H. Thomas, Secy. Midwest Section, c/o Sherwin-Williams, 115 & Cottage Grove Ave., Chicago, Ill.

Holman at Madison

Harold E. Holman, Assistant Director of the Lumber and Wood Products Division of the National Production Authority, Washington, D.C., discussed *"What is The Job of the Forest Products Industries in our Defense Program?"* before the FPRS Midwest Section meeting at Madison, Wis., July 20.

Stressing that there will be no letdown in attitude or production despite the favorable or unfavorable tides of international relations, he conveyed the assurance to industry "that we will make every possible effort to assist you in meeting your problems. We will assist in finding additional markets if you are willing to make the necessary adjustments in your present production techniques, and convert, where necessary, to other types of products that are in demand by the defense agencies and civilian activities supporting defense programs."

He stressed again that 'Beginning with the third quarter and continuing through all of next year, the military take is going to perk up at a rate increasing substantially each month. It is *then* that the impact of the defense mobilization . . . that shortages . . . additional dislocations are going to develop."

Mr. Holman was introduced by Dr. J. Alfred Hall, Director of the U.S. Forest Products Laboratory, who invited the guests to visit the facilities of the Laboratory. In all, some 75 members, guests and their wives outside of Madison, and 50 technical persons from the Laboratory attended the meeting.

The group visited and consulted with specialists in various divisions of the Laboratory including, Industrial Investigations, Derived Products Material Containers, Silvicultural Relations, Wood Preservation, Pulp and Paper, Timber Physics, Timber Mechanics, and Forest Pathology.

UPPER MISSISSIPPI VALLEY SECTION TO HOLD MEETING THIS FALL

Under the direction of Arne Kemp, Faculty, School of Forestry, U of Minnesota, and acting secretary of the Section, a meeting was held on July 25 in St. Paul to lay plans for a new set of officers and program this Fall.

Kemp was appointed chairman of the Nominating Committee to present candidates for office and a proposed Bylaws at the first business meeting. Art Lahey, Weyerhaeuser Sales Co., St. Paul, was appointed chairman of the Program Committee. Serving with him will be Ortie LaVoy, also of Weyerhaeuser, Arthur Larkin, Manager, Republic Creosoting Co., St. Paul, and Frank Kaufert, Dean, School of Forestry, U. of Minn.

Others in attendance at the meeting included James E. Stewart of the G. M. Stewart Lumber Co., Minneapolis; Verne Fredrickson, Anderson Corp., Bayport; E. P. Stark, Speed-O-Laq Co., St. Paul; S. M. Ford, Sifo Co., St. Paul; Bernard Granum, Iron Range Resources and Rehabilitation, Hibbing; Dr. Reese, U. of Minnesota; and F. J. Rovsek, Executive Secretary, FPRS, Madison.

The program of the meeting, planned for November 23, will be announced this month. Site will be the Twin Cities.

TECO PROJECTS

Timber Engineering Company, the industry-owned laboratory of the National Lumber Manufacturers Association, and probably the most diversified wood industry laboratory, with the exception only of the U. S. Forest Products Laboratory at Madison, has a number of projects in various stages of completion which should be of interest to members of the Society.

Tie-Testing Machine

This spring, a special machine capable of testing full cross-sections of cross-ties under rolling load conditions similar to those found in track was put into operation. It operates at a rate of 102 r.p.m. with a loading of 30,000 lbs. Two tie sections 6 by 8 by 22 inches are tested simultaneously. At present, one creosoted and one untreated red oak sections are being loaded.

To further simulate real conditions, a water line has been constructed through which the plate areas are moistened without stopping the machine; and sand is periodically floated under the tie plate.

As of June 25, the test sections have been loaded 1,000,000 cycles. Maximum tie plate cutting on the untreated section was 0.192 inches and minimum, 0.077 in. Maximum cutting on the treated section was 0.110 inches, minimum, 0.042 in. In addition to the foregoing, two sections which had been treated by the one-step seasoning and treating process developed by TECO, and also subjected to 1,000,000 cycles, resulted in maximum cutting of 0.087 inches and minimum of 0.049 inches. No definite conclusions are as yet reached on this continuing study.

Fersolin

To test relative merits of Fersolin and other soil improvers on crop plants of economic value, a 12 by 20 ft. plot has been constructed in the lab yard. It is divided into four beds, containing Fersolin A, made from conifer sawdust, Fersolin H, from maple sawdust, and peat moss. The fourth, a control, has nothing added.

Improvers are being added at rate of 10 tons per acre, or 8 lbs. translated to bed size. Plants selected for the experiment include a leaf crop, tobacco, a fruit crop, strawberry, and a root crop, carrot. Progress reports will be available.

Furniture

A reflectometer has been added for use in study of color changes in light finishes. The laboratory plans to determine causes of darkening of light finished furniture.

Variables include: effects of violet and infa-red light; temperature; humidity; air circulation; and thickness of finish.

Study is also in progress on an investigation of sunken glue joints in furniture panels. Variables under study include types of glues, moisture content of core materials, grain configuration, clamp pressures and methods of conditioning.

Tight Cooperage

Laboratory research to develop a lining material for wooden barrels that would be suitable for practically all shippable products has been concluded. Resin coating materials have been found that successfully withstood six weeks immersion in such solvents as denatured alcohol, lacquer thinner, formaldehyde, gasolene, lactic acid, concentrated acetic and dilute sulphuric, hydrochloric and phosphoric acids.

New Type Wood Fastener

Preliminary tests have been conducted on a new type metal fastener for coupling wood members. It has been tested in comparison to ⅜ by 1½ inch pin type dowels. Results indicate the metal fastener generally approaches and in many cases exceeds, strength of the dowel. Its penetration, ⅜ to ½ inch, suggests uses where dowel and screw assemblies are impractical.

Harry G. Uhl is President of Teco. Carl A. Rishell is Director of Research of both NLMA and Teco, and is a former board member of the Forest Products Research Society. H. B. McKean is Assistant Director. All are members of FPRS.

Research Publications

The following publications are reported as being currently available, without charge, from the U.S. Forest Products Laboratory, Madison 5, Wisconsin.

No. R496–*Distillation of Resinous Wood.* General information regarding methods and products of the resinous-wood-distillation industry. Covers equipment, products, yields, uses of products, extraction process.

No. R513-*List Publications on Glue, Glued Products and Veneer.* An invaluable and concise listing of over 200 technical notes, reports, articles and related publications available through U.S.F.P.L. and other government sources. 18 pages.

No. 1315–*Methods of Calculating the Strength and Modulus of Elasticity of Plywood in Compression.* Technical.

No. 1559-1 *Fatigue of Sandwich Constructions for Aircraft* (Glass-fabric-laminate, Facing and Waffle-type core sandwich material tested in shear) Technical.

Report 1637-42–*Improved Harvesting Methods–Equipment Survey Notes–Skidding and Bunching Tractor.* Modification of "dozer" blade on logging tractor in Lake States has increased usefulness and efficiency.

No. R1757–*Comparison of Wood Preservatives in Mississippi Post Study.* Experimental untreated southern yellow pine posts in Mississippi had an average life of 3.3 years. Untreated longleaf pine posts had 2 years. Those treated with beta-napthol in oil, 10% creosote, 90% crankcase oil, are estimated to have 12-15 years. Those with 20 other preservatives should last longer on the average.

Fla.-Ga.-Ala.

(Continued from page 47)

Forest Utilization Section, Tennessee Valley Authority, Norris, Tenn.

The program will start at 1 P.M. Friday, October 5, and will recess at 5 P.M., followed at 6:30 P.M. by a banquet at the Valdosta Country Club. An address of welcome will be given by the Mayor of Valdosta. Admiral Jelley will be the sole speaker following the banquet. The technical program will be resumed at 9 A.M. on Saturday and will close at noon. Attendees are encouraged to bring the ladies. Mrs. H. Langdale of Valdosta is in charge of the special ladies program.

A number of FPRS National officers are expected to be in attendance, including Pres. Roy M. Carter of North Carolina State College, R. A. Hertzler, Southeast Regional Board Member and Chief Flood Control Officer, Dept. of Agriculture, and Frank J. Rovsek, Executive Secretary, Madison, Wis.

Membership in the Society is not necessary for attendance. All persons interested in the subject matter presented are welcome. Please make reservations as promptly as possible through the Section Secretary, Henry Dorr Jr., Associate Professor of Forestry, Alabama Polytechnic Institute, 147 Nelocco Dr., Auburn, Ala.

FPRS Forum

The FORUM is intended to serve as a medium for open discussion by all F.P.R.S. members, bringing practical answers to specific problems. Questions or contributions should be direct to the Executive Secretary, c/o Wood/Wood Products.

The Problem: Are There Advantages in Heating Veneer Logs in Long-Log Lengths Instead of in Bolt Lengths Before Cutting into Veneer?

The Answer:

By HERBERT O. FLEISCHER

Technologist, U. S. Forest Products Laboratory, Forest Service
U. S. Department of Agriculture

The main advantage of heating veneer logs in log lengths instead of in bolt lengths is that the heart checks that develop in the log ends during heating are restricted to the two log ends, rather than occurring at the end of every bolt. These checks may be severe in oak, birch, maple, and similar woods that must be heated at relatively high temperatures for good cutting. When the checks extend some distance outward from the pith they are encountered early during the veneer cutting, and much defective and waste veneer results. They may also result in bolt breakage in the lathe before the bolt has been cut down to a small core.

These heart checks develop because of dimensional changes that occur in green wood when it is heated. Laboratory tests have shown that green wood expands tangentially and shrinks radially when it is heated. The expansion in the tangential dimension—that is, parallel to the growth rings—is particularly noticeable at temperatures above 140° F., and has been observed on pine, birch, oak, and beech. This expansion tends to make the outer part of the log larger, as when a balloon is inflated. At the same time the radial distance from bark to pith tends to become shorter. These factors combine to open checks that are wide at the pith and gradually taper toward the outside. The use of mechanical restraints, such as S-irons or metal rings driven into the log ends, has not been successful in restraining this type of checking. In some cases they seem to aggravate it by starting new checks or even ring shakes.

In most cases, the checks are restricted to the vicinity of the log ends. One reason for this may be that the discontinuity of the wood structure at the exposed end provides a zone of weakness where the checks can get started. Another may be that the exposed ends heat up rapidly in water or steam, but the central portions heat up more slowly because of the insulating layer of wood around them. Consequently the stresses in the central portions are developed over a longer period of time, permitting a gradual readjustment and relief.

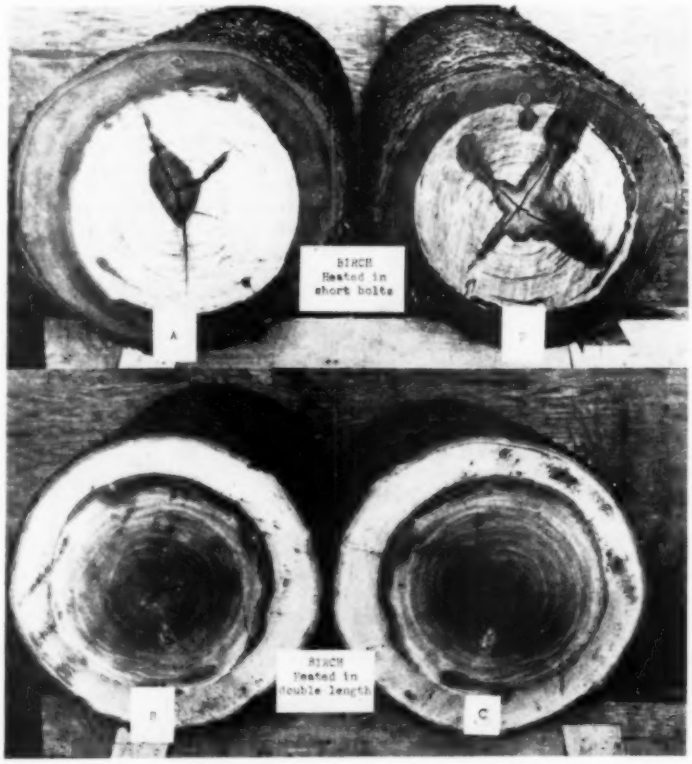


Fig. 1—Results of Experiment on four yellow birch bolts.

Figure 1 shows the results of an experiment conducted on four yellow birch bolts cut from a single 16-foot log having a 24-inch top diameter that was designed to illustrate this point. Two 4-foot bolts were cut from opposite ends of the log. The center 8-foot section was heated with the 4-foot sections in water at a temperature of 120° F. for 24 hours, then at 160° F. for 48 more hours. The checks that were present at the ends of the 4-foot sections after heating are shown in log ends *A* and *D*. The much smaller checks on the ends that were exposed by cutting the 8-foot length in two, immediately after heating, are shown in log ends *B* and *C*. Since the checks in *B* and *C* differed considerably from each other in pattern and size, it appears that they developed during or immediately after the sawing.

The major disadvantage in heating long logs for veneer cutting is the handling problem. Many mills in this country do not have vats long enough to heat such logs. European veneer mills, however, generally have long vats or steaming chambers suitable for heating veneer logs in lengths of from 30 to 40 feet. The United States industry might find it helpful to modify its heating equipment so as to make long-log heating possible, particularly with those species where end checking is a distinct problem.

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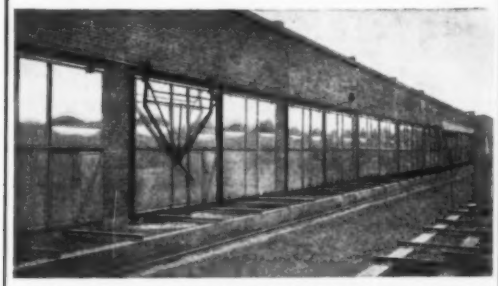

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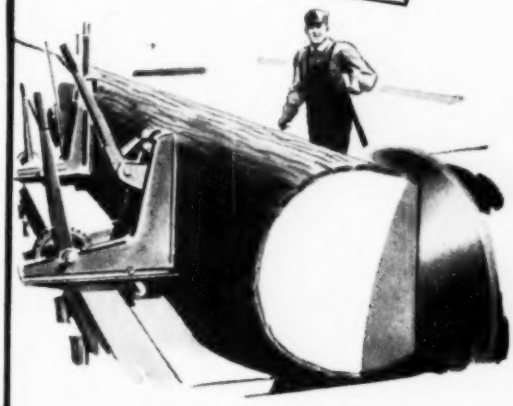

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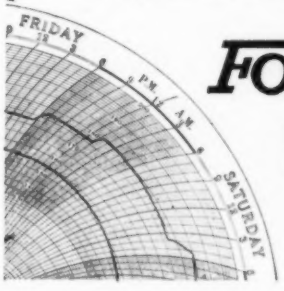

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KILN CONTROL

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MOULDER METHOD

THE RATE OF FEED DICTATES THE NUMBER OF KNIVES it is practical to use in the head as well as the quality of finish. A general rule of thumb used by many operators sets up these limits: rate of feed up to 35 f.p.m. for 2-knife heads, up to 120 f.p.m. for 4-knife heads (jointed), 6-knife heads from 100 to 175 f.p.m. (jointed), and 8-knife heads (jointed) from 175 to 250 f.p.m. Multiple knife heads must be jointed to receive advantage from the extra knives as otherwise there will be only one knife cutting regardless of the number of knives.

JOINTER HINT

SOME POINTERS FOR EFFICIENT JOINTER OPERATION ARE: joint all stock with the grain to produce a smooth cut; only firm pressure is needed over the stock, too heavy pressure can cause trouble and be dangerous for the operator; and an operator should always stand at the jointer so that the weight of his body is perfectly balanced to permit him to pass the stock over the cutters with a steady smooth motion without having to stop to get a new hold or stretch off-balance.

ROUTER SUGGESTION

ROUTER BITS RANK CLOSE TO THE TOP FROM THE POINT OF USAGE in carbide-tipped tools. The double flute design is most commonly used in sizes: 1/4-in., 5/16-in. and 1/2-in. In production plants were production runs are long, however, single-fluted bits are used in sizes up to 1/2-in. and double-fluted bits in sizes over 1/2-in. These bits are ordinarily relieved up to a keen cutting edge and formed with a land of about 0.005-in. to hold size and provide the required strength. Carbide-tipped router bits are especially adapted to work on plywood as they are relatively free from burning at the glue line.

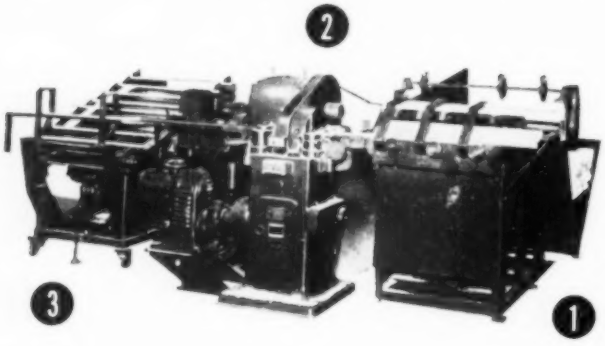
SANDING SHORT

THE WORKING LIFE OF ABRASIVE DISCS ON THE DISC SANDER CAN BE PROLONGED by brushing them from from time to time with a stiff wire brush while they are not in operation. Brushing should never be tried when the sander is in motion.

PLYWOOD POINTER

FOR THE PRODUCTION OF TOP GRADE DECORATIVE PLYWOOD WITH FANCY FACE VENEERS, the only grade that may be used with economy and utilization is No. 1 Select Clear. This type of plywood requires every face to be clear and even when the best material available is used, waste often runs as high as 60%.

triple threat production team



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If you did not see this team in action at the recent Forest Products Industry show they are: (one) Hawker Automatic Hopper Feed (two) Two Motor Rod and Dowel Machine, and (three) the new high production Automatic Dowel Chucking Machine. At the show this team produced automatically, more than 1500 dowels per hour—that is feeding squares automatically to the dowel machine, transferring them automatically to the chucking machine, topping them, and delivering them finished, ready for use! This same team, in your plant, can produce 1500 units per hour for you. Example: shovel handles, in a two-head chucking machine would be topped on one end and tapered at the other, simultaneously, automatically, 1500 per hour—day after day. The new chucking machine can perform drilling, tenoning, tapering, threading, topping, and other operations singly, or in pairs, according to the number of chucking heads installed. If you want real *production*, write for detailed information today.

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Your business, too, can profit from Moisture Detector benefits. Because for quick moisture tests of *any wood product*, you get precise measurement not in one, but *three moisture ranges:* 6 to 12% (kiln dry range); 12 to 22% (air dry range); and 22 to 65% (green range). There are no calculations to make—no convertion tables required—just read the correct percentage of moisture content *direct* from the dial!

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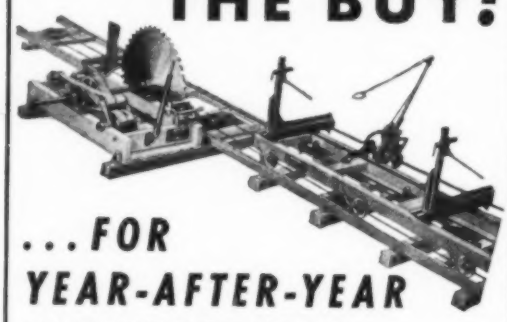

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Grading Quiz

(Continued from page 36)

determining the density or specific gravity of the wood which is an excellent index of strength properties. An effective method for determining density is afforded by the density rule, which requires not less than 6 annual growth rings per inch and at least 33-1/3% summerwood (the darker, harder portion of the annual ring), or if less than 6 rings to the inch, 50% summerwood, measured at places described in the rule. Usually only dimension and timbers are required by the rules or specified to be dense, and it is here that the density rule is applied.

21. *Question. Is lumber sold by moisture content?*

Answer. Yes. Most of the grading rules for softwoods provide for some degree of seasoning and in one species the rules establish a maximum moisture content for all of the grades of lumber 2" and thinner. Even with respect to species which are graded under rules which do not specifically limit the moisture content, purchase specifications often require that the lumber must not ex-

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ceed a stated percentage of moisture content. Hardwoods are usually sold air-dried, and are generally kiln-dried by the industrial consumer although in cases it is sold kiln-dried to a specific moisture content.

22. *Question.* *What is meant by "equivalent characteristics"?*

Answer. In grading lumber much depends upon the judgement of the individual grader. Therefore, if characteristics or defects are encountered which are not mentioned in the item grade rule, the grader shall appraise such characteristics in relation to those permitted or described for the grade under consideration, and may accept the piece if regarded as equivalent or less damaging in the strength, appearance or other utility value of the piece.

23. *Question.* *What is meant by (a) "side cut", (b) "boxed heart" in describing timbers?*

Answer. (a) "Side cut" means the piece of lumber has been sawn from some portion of the log away from the pith or heart of the tree. (b) "Boxed heart" means the piece of lumber has been sawn from the log in such manner as to include the pith or heart in one piece.

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Four new Moore Cross-Circulation Kilns—**Automatically Controlled**—enable Frost Lumber Industries, Nacogdoches, Texas, to produce such quality seasoned lumber, that one of their customers wrote:

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SEASONING EXPERTS

(Continued from page 32)

wood technology course to supply them with a graduate who was definitely interested in wood seasoning. The young man selected was interviewed and given a complete picture of what he might expect from the company in the way of salary, bonus and security, if he measured up to expectations.

Arrangements were promptly made with the manufacturer of their dry kiln equipment to carry this trainee with their organization for one month. During this time the young man had an opportunity to study the engineering and construction of the dry kiln equipment. He accompanied erection crews on new installations and service engineers on trips to service specific kiln drying problems. By the time he returned to his own organization, this trainee had absorbed considerable kiln drying theory and had picked up an extensive knowledge of kiln drying equipment.

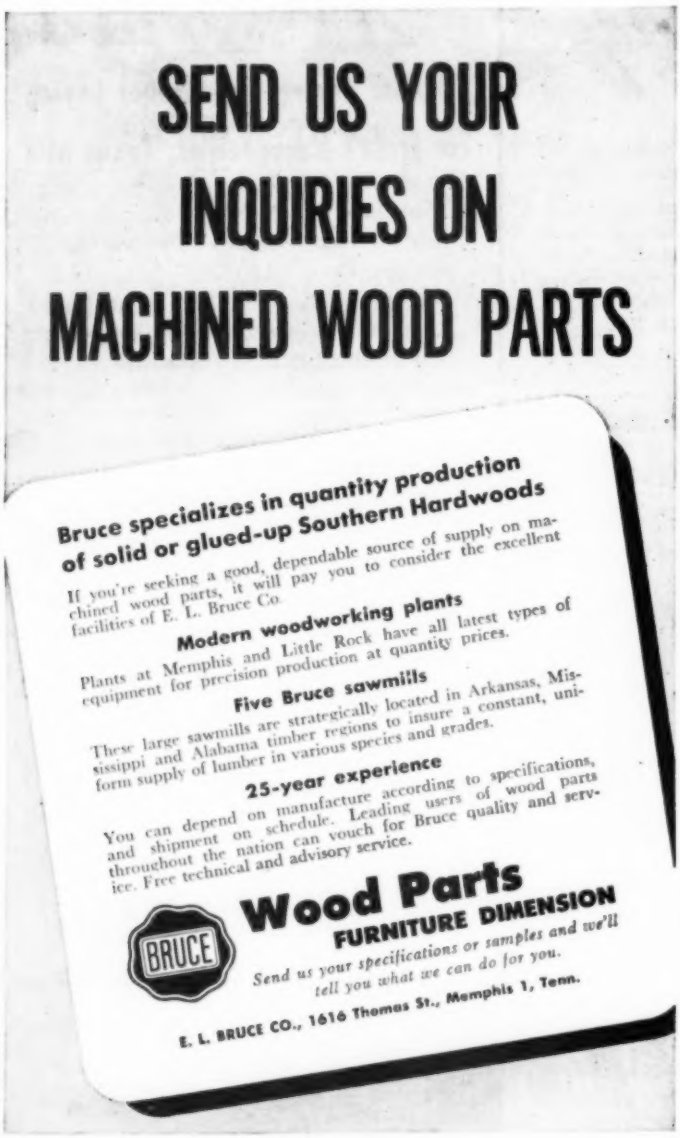
He next spent another month in the yard studying species used and stacking, sticking and selection of lumber for kiln charges. During this time he improved his worth by suggesting a number of improvements of yard practice, a good percentage of which were sound enough to be adopted without change. His practical good sense and pleasing personality also put him on friendly relationship with the yard crew and foreman who passed the word around that he had good common sense and possessed a genuine desire to learn.

This seasoning specialist trainee was then placed in charge of the dry kilns, given a lumber requirement schedule for the next three months, and told that he was on his own. He operated his first kiln charges according to safe conditioning schedules as published by the U. S. Forest Products Laboratory while he proceeded to familiarize himself with the kiln equipment and its operation. He doubled the number of kiln test samples and followed the progress of lumber drying closely and carefully.

At the end of the second month of his operation kiln drying degrade had been reduced substantially but drying time had been lengthened to a point where management began to fear that adequate supply of dry lumber would not be available to meet manufacturing requirements. The trainee was called into conference to account for this condition.

The young man had an answer. In fact, he had many answers and suggestions. The first were in the form of a number of proposed accelerated schedules designed to cut down drying time for lumber to be used for non-stress parts. He then presented a kiln performance analysis which showed improper kiln performance of two kilns with suggestions for repair and adjustment. There were many more facts and figures submitted which made management feel they had selected a man of good judgement, who was capable of weighing the facts and reaching a definite conclusion of what had to be done.

It may be argued that such a training program can be a very expensive proposition. When one considers the seasoning specialist is custodian of kiln drying equipment representing an investment of several thousands of dollars and has the capacity not only to ruin the efficiency of the kilns but also to destroy thousands of dollars worth of lumber as well as possibly shutting down plant production, it would seem to be a very sound investment which will continue to pay dividends throughout the seasoning specialist's working life—and will increase progressively as his experience and judgement develops.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MAINTENANCE

(Continued from page 34)

Since they already are scheduled for use to the fullest, *extra output can be gained only by minimizing their normal time–out from scheduled use for major repairs and overhauling.*

Here is the heart of the productive maintenance idea–to overcome as far as possible unscheduled breakdowns of equipment causing delays in production, often when they are least expected or can least be tolerated. By providing for a system of planned outages–planned in advance for the time when the machines can be taken out of service for the shortest possible time–the stoppage will least affect total output and other operating units in the plant.

For the planned outage is designed to replace, as far as possible, the unscheduled breakdown by taking the machine briefly out of service for a thorough, time–and production-saving repair job before it reaches the point where it might break down of its own accord.

To do this effectively, a complete, systematic survey is first conducted–of the plant and how it operates, of the equipment, and the role of each machine in relation to the others. Broad in scope, the survey thus analyzes, first of all, the entire operation of the plant. It then determines which equipment is the most critical, which carries the heaviest loads. It goes on to list machines and units in the order of their vulnerability, noting the condition of each–its age, state of repair, severity of duty, and similar factors that will enter into determining the desirability of additional repair and the kind of maintenance required.

The equipment survey in the productive maintenance program serves to remove the guesswork from maintenance. Because of the total picture that it gives, other important improvements can be made at the time of the planned stoppage, improvements that might have necessitated stoppages of their own were they allowed to wait unattended.

Included as an important part of the equipment survey is the recommendation it gives for stocking an adequate supply of needed renewal parts. By being able to look far enough ahead, by pre-planning the replacement parts aspects of maintenance, the problems of delivery delays and temporary unavailability can be largely overcome. This foresight, too, can pay off in terms of less repair-time delay and consequent added production.

WAGE FREEZE

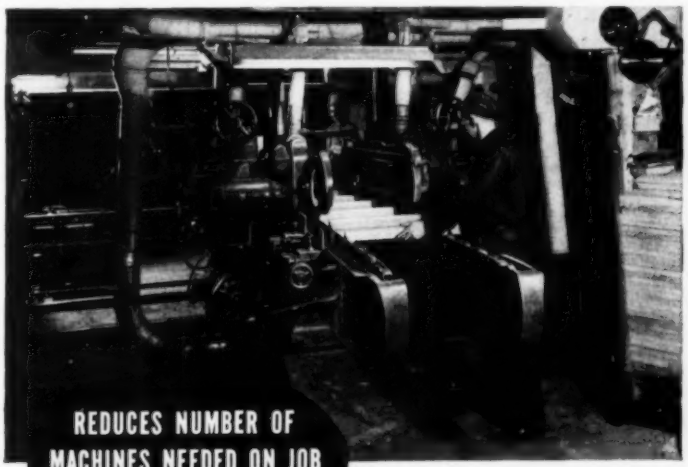
(Continued from page 33)

for maintaining wage and salary plans, and for recognizing, by differences in individual rates, variations in individual performance in jobs of equal grade.

While the foregoing outlines the fundamental steps of a job evaluation study, the foundation of any human relations program embodies the human element. To attain the greatest measure of success, the management initiating such a study must be sincere. Employees quickly detect moves which are intended to "pull the wool over their eyes." The acceptance, by the employees, of any company policy or program is determined largely by the extent to which they have been allowed to participate in its formation and their understanding of its purpose. Employees should be given the truth about the program, its objectives and how it functions. Upon completion the results should be explained to them and how they as individuals are effected.

The evaluated rate might be higher, equal to, or lower than the present

(Continued on page 58)



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. . . Greenlee Double-End Tenoner

"At the time we purchased this machine, we were running quite a large job which required three mitre saws, a double cut off saw and five shapers. Within one week after the GREENLEE Double-End Tenoner was put into operation, the machines necessary on this job were reduced to one mitre saw and one shaper.

"In addition to this saving, our Cabinet Room output jumped more than 20% due to more perfect fitting or precision machining and a much improved general appearance of product."

That's what Mr. H. L. Hubbell of H. L. Hubbell Manufacturing Company, Zeeland, Michigan says about the versatile GREENLEE Double-End Tenoner.

Here is just another example of the many important savings and production benefits a GREENLEE Double-End Tenoner makes possible . . . from the machine room on through the cabinet and finishing rooms.

For, as a "woodworking plant in itself", it literally reaches out after extra work. It steals job after job from single-purpose machines . . . draws into itself scores of different, difficult jobs . . . to bring about new efficiencies, welcome cost reductions and superior finished work.

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GREENLEE WOODWORKING MACHINERY: MORTISERS • BORERS • SAWS • TENONERS • PLANERS • SHAPERS • MORTISING & BORING TOOLS

(Continued from page 57)

rate. In some studies jobs are found to be underpaid while other jobs are overpaid. Theoretically, there should be approximately as many jobs which evaluate at higher than current rates in comparison with those which evaluate at lower than current rates. Usually, it is found that the average of all rates, after evaluation, varies only a fraction of 1 percent from the average before the evaluation work is done.

As the study continues it is customary to select from within the company's organization a committee which is to be taught the techniques of job evaluation. This group, upon completion of the study, becomes qualified to carry on and maintain the wage structure in conformity with conditions. The committee's secretary has the responsibility of investigating and preparing material prior to discussion by the group, as well as keeping up to date on changes of job content and referring such matters to the committee for re-evaluation.

One of the immediate benefits of job evaluation is the opportunity which it provides to submit a prepared wage plan or policy to the Wage Stabilization Board. After the approval of the plan by the designated Board it will be possible to grant individual merit or promotion increases. Companies having such a plan during World War II did not experience too much difficulty in having the plan approved by the War Labor Board.

The job analysis becomes invaluable in addition to its use for the purpose of evaluation. It is the foundation for compiling statistics which can be used to formulate personnel and management policies and procedures. Typical by-products of job evaluation are personnel selection and training data for: (a) physical and mental requirements (b) education and experience requirements (c) training period (d) dexterity tests (e) promotional possibilities (f) health and safety standards (g) aptitude or qualification tests.

Employees knowing which road they are on and where it will take them, become more interested in their jobs as evidenced by better performance. Job analysis material is also valuable in the preparation of charts which set forth the possibilities of each job and it's ultimate goal. This chart is similar to an inverted organization chart, for it works up from the bottom rather than down from the top.

Accurate job descriptions developed in the study enable employment managers to conduct more intelligent interviews. Properly developed job factors show job requirements for responsibility; skill, dexterity, accuracy etc; initiative and ingenuity; education and experience; working conditions; physical requirement and special job factors. It is a key with which to match man qualifications with job requirements. Both the employee and employer stand to benefit when the right man is put into the right job. When man and job are properly matched greater efficiency and production are insured.

Generally in large organizations the foremen and supervisors are the contact for the company with the rank and file employees. Employee attitude studies indicate a feeling that too often the "boss" lacks understanding of the work he supervises and particularly if he is not handling the human aspects of his job with competence. The man who successfully directs the work of others must have the human understanding.

The many benefits of a job evaluation study to woodworking firms may be summarized as follows: (1.) A defensible wage structure. (2.) Stabilized labor costs. (3.) A scientific evaluation scale. (4.) A fool-proof formula for long-term personnel policies. (5.) Satisfied employees. (6.) Correct rate to fit the job. (7.) No job inequities.

DID YOU KNOW

that the early discoverers of the North American continent would have been amazed to find that beyond the wooded shores, a dense forest extended 2,000 miles inland!

and did you know . . . .

that you will be amazed to discover the extent of the economy of LANE Tractor Saw Mills. They are easy to locate, require less investment and offer more freedom of movement where lumber resources are thin or scattered. No need to conduct costly experiments or to explore the market — just write for details on the time-tested LANE MILL today!

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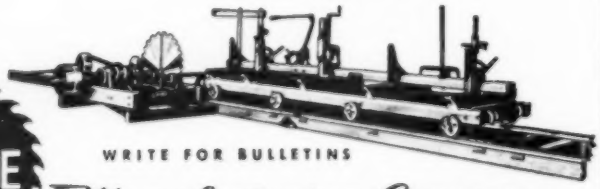

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WRITE FOR BULLETINS

Manufacturing Company

MONTPELIER, VERMONT

ADHESIVES

(Continued from page 31)

gation of the glue maker to provide a product of uniform quality, which under proper operating conditions will give uniformly satisfactory results. Any reputable manufacturer of adhesives and glues is willing to guarantee this.

It is unreasonable to expect that any glue maker will assume responsibility for what may happen in the user's woodworking shop, through carelessness, inattention to instructions, ignorance, stubbornness, an illogical endeavor to use new products according to traditional methods, or unauthorized advice from competitors. The use of any adhesive involves many variables, most of them more within the control of the user, rather than of the glue maker. After many years of experience, the writer has found the transgressions of the user more numerous than the sins of the glue maker.

Obligations of the Glue User

The second of the principal parties in the responsibility for good gluing is the woodworker who undertakes to purchase and utilize a new glue or adhesive. He inevitably assumes several obligations that are seldom fully appreciated. In the first place he owes it to the glue maker to follow, carefully, all the operating instructions provided. This means clean utensils and equipment; careful measurements of ingredients; intelligent mixing; the skillful application of the right amount, not too much or too little; and the proper timing to get the best results.

It is not at all unusual, in fact it is quite common, to find untidy conditions in the glue room, inadequate or residue coated containers, as well as inappropriate weighing and measuring devices. A scale suitable for weighing 100 pounds of a major ingredient is wholly unsuitable for measuring a minor ingredient, such as a catalyst, of which two to five pounds may be required. An error of one half pound in the former, about ½ percent, may be negligible, while the same quantative mistake in the latter may be 10 percent to 25 percent away from the standard, and produce quite unsatisfactory results.

The paddles of the mixer should closely scrape the sides and bottom of the container, so that the dispersion of the ingredients is thorough and uniform.

These inferences with regard to glue room operations may seem a bit harsh, but glue room improvement still demands vigorous language. A spirit of fairness, however, indicates that the fundamentals of glue room technique and orderliness have improved, substantially, during the last dozen years. This is due, undoubtedly, to the chemical emphasis that is inherent in the use of the modern resin adhesives. The evidences of better gluing methods are apparent, as well, where the older traditional glues are still used. Whereas the glue room of 20 years ago was likely to be the most malodorous and untidy department in a woodworking shop, it has now outgrown much of its unsavory reputation. It still has far to go, to meet the accurate and cleanly standards which are required for the most efficient use of resin adhesives.

The operating instructions of the glue maker, if followed will enable the user to avoid unanticipated and unintentional difficulties. It is only reasonable for the user, for his own sake, to follow such instructions carefully to eliminate the hazard of mistakes that may be costly, and for

Our prices are right . . . deliveries as YOU want them.

Our technical staff is busy . . . but NEVER too busy to take on an interesting adhesive problem.

Today's not too soon to join the enthusiastic thousands who look to National Casein for their glue supplies—casein and resin.

In fact, "Casie" and "Resie" join in close harmony to remind you that our customers are happy customers. They are ever eager to welcome YOU in.

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No Glue Problem—Casein or Resin—is too Little, too Big, or too Tough!

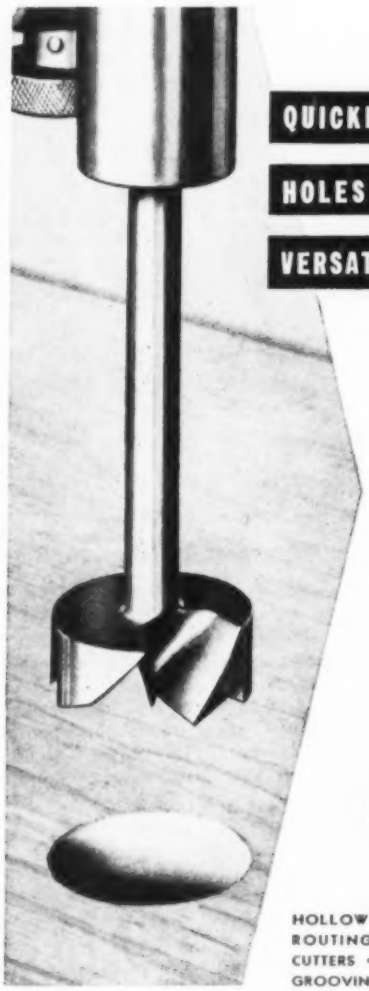
605-19 West 80th Street, Chicago 20, Illinois • Broad & Fulton Sts., Riverton, N. J.

(Continued from page 59)

which he would be responsible. The glue maker can predict many things that ought not to be done with the adhesive, and a user who does not avail himself of such advice does not deserve to succeed. There may be special problems in gluing a product that the glue maker cannot forsee, and here the user is on his own to avoid costly mistakes. It is the user's problem to determine the most favorable operating conditions in his factory, consistent with a reasonable interpretation of the glue maker's instructions.

There is no justification for assuming that the instructions of a glue maker are arbitrary or unreasonable, or require too much accuracy. Every glue maker, more than anything else, wants his products to be satisfactory in every user's shop. He will impose no directions that experience has not demonstrated. He cannot afford to be knowingly unreasonable, but he must supply good sound advice in addition to supplying good products.

Management, in almost every woodworking factory, can find workmen skilled and experienced in the preparation and application of glue. They will know many of the requirements of good gluing technique that are common to any good glue or adhesive. If such workmen are not mentally alert or their minds are closed to progress, if they think the old days are better than the present, and if they feel that the future of their place in woodworking is more dubious than it is now, it will be unwise to attempt to train them to use new adhesives. If their minds are open and they are eager to learn new methods, their background of experience in gluing technique can be immeasurably valuable. In the last analysis management must determine the suitability of workmen to new products and techniques.



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GROOVING TOOLS FOR TIMBER CONSTRUCTIO'

The User of Furniture

There is a third party in this triangle of responsibility for good gluing; the purchaser of a piece of furniture, assembled with glue, who will install the item in his home and expect a life time of service.

This third party can do nothing to change what has been done by the glue maker or by the woodworker. Nevertheless, he can exert a powerful influence on glue quality by insisting on purchasing his furniture from a responsible dealer, who in turn patronizes a furniture factory which has a reputation for honest workmanship and quality products. If the home maker would more carefully scrutinize the sources of his purchases, the irresponsible furniture maker and unprincipled dealer would find the going difficult and would eventually fade away.

This third party has another responsibility, that of reasonable care in the use of furniture assembled with glue.

Protective coatings, or finishes, on furniture, have a double purpose; to enhance the beauty of the wood; and to protect all wood surfaces from the moisture changes that cause shrinkage and swelling. The indescriminating washing of furniture, with generous applications of soap and water, by an enthusiastic house cleaner, can cause serious harm.

Conclusions

A frank recognition of the factors emphasized here should be convincing evidence that this three-way responsibility for good gluing is realistic.

In the process of purchasing the woodworking user should state his requirements, fully explaining any details that may be unusual, and outlining difficulties that have been encountered or may be anticipated. The glue maker, on his part, should

(Continued on page 62)

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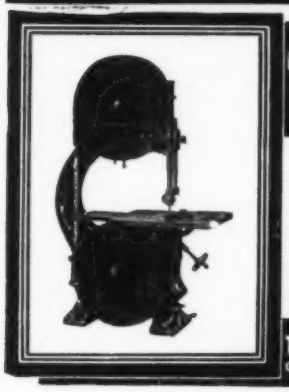

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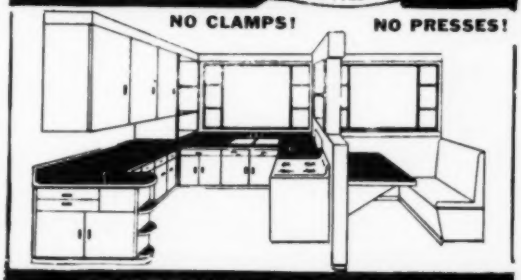

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MEYCO carbide tipped saws are in a class by themselves, because the blades have been engineered for the addition of the carbide cutting teeth. It is this engineering know-how of building a carbide tipped saw from the ground up, that has made the MEYCO circular saws unique . . . that has accounted for repeat orders and a customer satisfaction of which we are justly proud.

VIBRA-FREE*

THE NEWEST THING IN CIRCULAR SAWS

Vibra-Free* dampers make it possible to distribute the stresses and strains inherent in every blade MORE EVENLY, thus producing an even better carbide tipped saw than has been possible heretofore. Vibra-Free* dampers absorb the sound waves set up by the motion of the saw, thus doing away with the objectionable, high-pitched whine, plus the rough cut produced by vibration.

Write for new catalog describing these Meyco Saws in detail.

*T. M. Reg. U. S. Pat. Off.

W. F. MEYERS CO., INC., BEDFORD, INDIANA

(Continued from page 60)

recommend the most suitable glue for the user's requirements, predicting any limitations that can be foreseen.

The woodworking user, while accepting the statements of the glue maker, should go further and conduct pilot plant tests, under actual operating conditions and on regular products. Problems may develop that neither has anticipated. The user also should take every advantage of the glue maker's help and assistance, which is always willingly offered.

The ultimate consumer of furniture exerts a powerful influence in the direction of good gluing, since his dollars can be most persuasive in demanding good gluing. Without such demands, poor gluing may be perpetuated.

The responsibility for good gluing is three-fold, and rests on three parties; the glue maker; the woodworker who uses the glue; and the ultimate purchaser of the glue product. Like a three-legged stool, weakness in any leg will make the stool precarious, and the failure of any leg will render it useless.

It is up to the woodworkers of this country to see to it that all three legs are kept strong and sturdy.

Efficient System makes

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Thirty-three years study, and the application of our findings, has brought system and efficiency in every operation in the production of PERMAWOOD Hardwood Plywood. It is a better product!

This new deck system is employed to handle, clip, sort, and grade green veneer from the lathe.

We make PERMAWOOD panels in standard sizes, in all veneer construction from 3/20" to 1-1/16" thick, and in lumber core construction in 3/4" and 13/16" thickness. Widths manufactured are from 30" to 48"; and lengths from 36" to 96".

Write for latest stock lists and prices.

DARLINGTON VENEER CO., INC.

Established and in continuous operation since 1918

Darlington, South Carolina

CHAMPLIN

(Continued from page 29)

med ends drop and are carried from the trimmer by belt conveyor to trucks for delivery to the boilers for fuel or to be sold to local wood dealers.

After leaving the automatic trimmer all boards progress along a sorting chain for hand sorting. Little rough grading is done here and most sorts are made for width to permit the accumulation of stacks of the same widths for more efficient planer and matcher operation. Standard sorting widths usually sorted are 3, 4, 5, 6, 7, 8, 9, 10, 11 and 12 inches. These sorts are stacked on special 4-in. by 4-in. carrier bolsters, equipped with short feet applied offset to the outside edge to permit stack loads to be picked up easily by the straddle carrier.

Loads of the same width groups are delivered to the planing mill proper by straddle carrier and deposited on a Stetson-Ross traveling apron deck conveyor for movement and delivery to the unloader hoist. A single operator controls the operation of the conveyor, unloader hoist and power feed table by means of foot controls. These operations are so closely synchronized and controlled that he is often able to run consecutive loads in continuous succession without requiring any planer and matcher shutdown time to permit hoisting or breaking down lumber packages for feeding.

Breaking Packages

Following delivery from the conveyor to the unloader hoist, the lumber package is first hoisted on the tilting unloader and then broken down onto transfer chains to the feed table. Stickers (where used) and bolsters drop into a conveyor at the bottom of the unloader hoist which carries them off to a portable bin for removal to the stacker or sorting station for re-use. The load is cradled by the tilted columns and arms to prevent spilling and the hoist elevates the lumber a course at a time to deliver the boards to the transfer chains.

Both the feed table and planer and matcher are provided with variable speed drivers to permit the selection of the proper planer and matcher feed speed for the stock being run, and to adjust the table feed speed to butt the lumber before it enters the

(Continued on page 64)

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Wears and grips like a tire

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Tough Natural Rubber *over palm and thumb. Far outwears costlier leather.*

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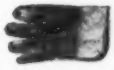
Strong Fabric Lining *and back — comfortable as a canvas glove. Very flexible.*

Easy To Slip On Or Off: *Safety cuff, gauntlet or knitwrist — rubber coated palm or completely waterproof styles.*



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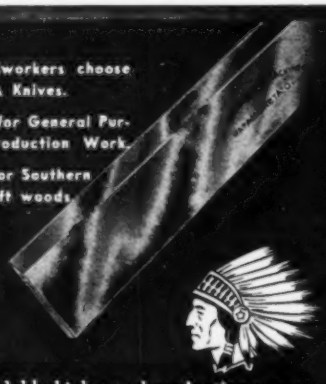

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(Continued from page 60)

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(Continued from page 29)

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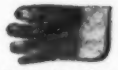

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Quality Woodworkers choose WAPAKONETA Knives.
"BIG CHIEF" for General Purpose High Production Work.
"MOHAWK" for Southern and similar soft woods.
For dependable high speed production use...
Wapakoneta
BIG CHIEF and MOHAWK
HIGH SPEED KNIVES
THE WAPAKONETA MACHINE CO.
WAPAKONETA, OHIO
INCORPORATED 1891

Importers of

GENUINE MAHOGANY

Wholesalers of

BAND SAWN
PONDEROSA & SUGAR PINE
SOFT TEXTURED
BIG MILL HIGH ALTITUDE STOCK

CALIFORNIA REDWOOD
BAND SAWN HUMBOLDT BAY

We Maintain a West Coast Buying Office

DON B. WALLACE INC.
Guardian Building
Detroit, Michigan

(Continued from page 62)

machine. The feed table is equipped with pineapple and short stock rolls for accurate and positive feeding control and to speed up forward travel required to conform to the machine feed. An adjustable spring bumper prevents the entrance of over-width stock and an adjustable barrier prevents two boards, one on top of the other, from entering the machine.

The Stetson-Ross planer and matcher used here is running from 300 to 325 feet per minute with 10-knife heads. The feed table is operated at 100 percent to 175 per cent higher speed to keep all boards butted through the machine. The top heads and feed rolls and outside side heads of this planer and matcher are all adjusted with hoist motors and push button controls instead of cranks. The use of the cartridge system of profiling in this machine permits all setups and grinding and jointing to be done in the grinding room, eliminating the longer and more costly process of setting up and jointing heads on fixed arbors on the machine.

When dressed, finished lumber is conveyed from the planer and matcher via conveyor belt to the grade sorting chain. The sorters catwalk is raised above the floor level to a position where stacking from the sorting chain is made easier. Idler rolls are to be provided soon along the edge of the sorting chain to permit easy movement of boards to the stacks. Hand sorts are made along the line and stacked on bolsters while the major grade is permitted to travel over the end of the chain to the (S-R) reloader hoist where it is semi-automatically stacked into 4-ft. by 4-ft. packages.

This tilting reloader operates just the reverse to the unloader as it builds up the lumber package course by course as the arms are lowered in progressive board thickness steps. When a complete lumber package has been built up, the reloader is lowered to deposit the package onto a live roller conveyor which carries it out to lift jacks on which bolsters are mounted to carry the load. These jacks raise the load to a convenient height for loading by the straddle carrier which carries it away to the strapping and shipping area.

Both the kiln load unstacker and the reloader hoist are said to be the first of their kind in any mill anywhere. Most finished blanks are prepared for shipment by strapping in bundles with Signode steel strapping and metal corner supports, usually in 8,000-ft. bundles for truck shipment. All 4/4 stock is finished in blank form—S4S—and is re-run through the planer and matcher with profile cutters if detail is required.

8/4 stock for dimension framing lumber and structural lumber bypasses both dry kilns and the kiln truck unloader and is fed to the automatic selective feed trimmer feed chains via a belt conveyor. Sorts after trimming are made for species and width and are stacked on bolsters for delivery to the planer and matcher apron deck conveyor with the straddle carrier.

Dimension 2 by 4's, 2 by 6's, etc., are produced at the planer and matcher with eased edge splitter heads in a single pass from a single rough board. This stock is sorted over the sorting chain for length and/or grade and is stickered for air-drying directly off the sorting chain so that it never has to be re-handled. All dimension is dressed before air-drying and experience thus far shows less degrade than when it was first air-dried and then machined.

Mammoth band saw in one of the STEWART mills is shown ripping huge oak timber. Modern equipment such as this, in all STEWART mills is one of the reasons we can say "The Best Hardwood comes from STEWART."

From the vast STEWART forests we select only the choice timber for making STEWART Hardwood Dimension. It is processed in one of seven STEWART mills and finished in the STEWART plant—the newest and finest in the South. From forest to you it's STEWART all the way! The STEWART fleet delivers to most points in the Mississippi valley. For a dependable and permanent source for top quality hardwood dimension with ready-to-use finish, remember to call us.

E. A. STEWART LUMBER COMPANY, INC.

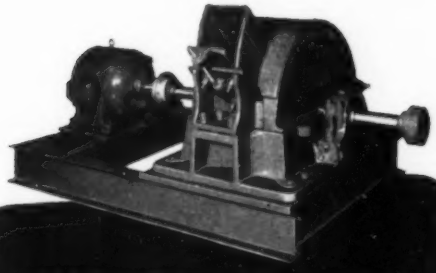
KILN DRIED HARDWOOD DIMENSION • HARDWOOD FLOORING • HARDWOOD TIMBERS

PHONE 3-5137 **TEXARKANA, U. S. A.**

Indiana Representative: Fred H. Stanford Co., 5376 East Washington Street, Indianapolis

M & M utilization equipment

For Veneer Waste



Let M & M Disposal Equipment turn your waste into profits. These machines are built in many types and sizes for slabs, edgings, trim, blocks, veneer, bark, and other combustible waste. Don't overlook the extra dollars that can come from utilizing every available bit of waste. Send us your problem and we'll show you how M & M Disposal Equipment can solve it.

MITTS & MERRILL

1018 South Water • SAGINAW, MICHIGAN

EASY TO BE SURE

YOU ARE USING THE RIGHT COPE HEAD FOR THE JOB

YOU'RE INVITED to throw your cope head problems at our engineers. Their counsel is yours for the asking. See how easy it is for a BADGER high precision built head to do your job. You will be glad you did when your production is running accurately, safely and showing results in machine production records. BADGER cutter heads, precision ground knife steel and precision STANDARDIZED shaper steel have made BADGER a name on which the woodworking industry depends.

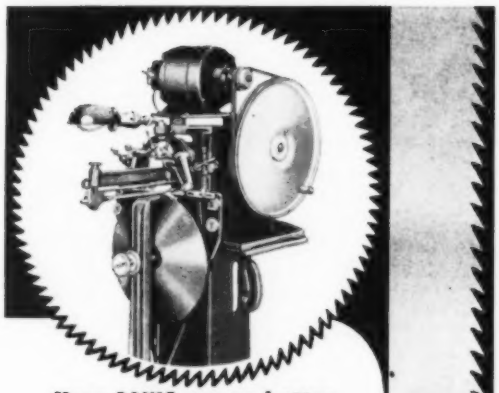
WE'LL BE GLAD TO ANSWER YOUR QUESTIONS AND SEND YOU A COMPLETE CATALOG.

TOWEL ROOM BAR

BADGER WISCONSIN KNIFE WORKS

Engineers to the Woodworking Industry

BELOIT WISCONSIN



Your SAWS are no better than your SAW FILING

Inaccurate saw filing can ruin the cutting efficiency of the best saws, perhaps crack or break them. The machine precision of Foley Saw Filing can increase your sawing output 25% to 40%. The Foley *automatically* joints the saw as it is filed, making all teeth uniform in size, height, spacing. Foley-filed saws run cooler, cut fast, do beautiful work—and stay sharp longer.

30-DAY TRIAL of the Foley Saw Filer is offered—to show you what a difference Foley-filed saws can make.

FOLEY *Automatic* SAW FILER

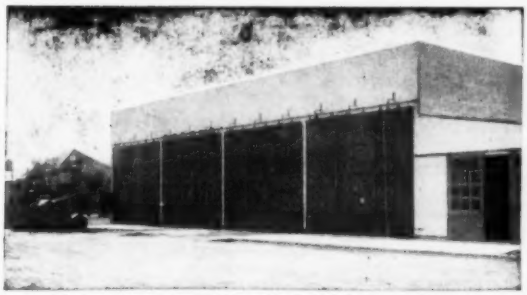
FOLEY MFG. CO., 3308 N.E. 5th St., Minneapolis 18, Minn.
Please send literature on the Foley Automatic Saw Filer and details of your 30-Day Trial.

Name _____

Address _____

NORTH COAST DRY KILN

"DIRECT-FLO"



Reversible Circulation • Uniform Drying

NEW KILNS • KILN MODERNIZATION • KILN ACCESSORIES

The North Coast Dry Kiln is the most efficient kiln in operation today. The fans are positioned at the side of the lumber loads so that air follows the shortest possible "Direct-Flo" path. This insures uniform efficient drying for the lowest possible power consumption.

We can manufacture kilns to your specifications.

Write for details to Dept. W-3.

Manufacturers and Engineers

OFFICES AND WAREHOUSES IN
SAN FRANCISCO, CALIFORNIA
LOS ANGELES, CALIFORNIA
HONOLULU, HAWAII - MANILA, P. I.
VANCOUVER, BRITISH COLUMBIA

C. M. LOUSTED & CO., INC.

ENGINEERS AND MANUFACTURERS

4000 W. MARGINAL WAY · SEATTLE 6, WASH.

PHONE AValon 4000

NEW

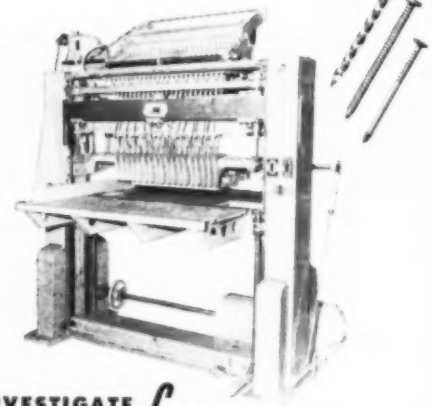
Products . . . . processes
equipment . . . . methods
materials & developments

Ply-Veneer Wallboard

Ply-Veneer is a new wallboard developed by Elmendorf Research, Inc., of Dept. W, 322 W. Washington St., Chicago 6, Ill., to overcome some of the problems associated with the use of plywood in the weather. It is made of a single ply of thick veneer that has been stretched or distended and after distending is faced on both sides with heavy Kraft paper bonded to the veneer with a weather-proof adhesive. The surface exposed to the weather is painted, or it is faced with resin-impregnated paper in the factory.

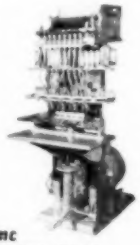
The veneer core of Ply-Veneer is generally 3/16-inch thick. It is distended by a process of slitting in which the wood is wedged apart into narrow elements without removing fibers, thereby increasing its width about 8 to 10%, and providing room within the panel for expansion so that the panel remains flat in the weather.

Want to do a better, faster nailing job?...



INVESTIGATE fmc ALL-PURPOSE
INDUSTRIAL NAILER

The 24 nail drive head operates at 87 strokes per minute; drives all types of nails ranging in size from 3d to 10d. Machine is used extensively for manufacturing pallets, shipping crates, redwood furniture, cooling towers, panels and other industrial wood products. Basic nailers are available in 48", 66" and 80" widths (other widths if required); design of jigs and nailing tables are custom engineered to specific requirements of the jobs to be done.



fmc
CLOSED BACK
FC NAILER

accommodates work from 1" to 18" deep; 8 or 12 run nail feed; 8 nail drive; 4d, 5d and 6d nails. Ideal for flat nailing, box making, cleating and lidding. Ammunition box end making.

fmc
SCREW DRIVING
MACHINE

drives up to four screws simultaneously into wooden boxes and other assemblies. Ideal for screwing hinges, swivels and hasps on small ammunition or similar type boxes.

fmc
AMMUNITION BOX
MAKER (AC-5A)

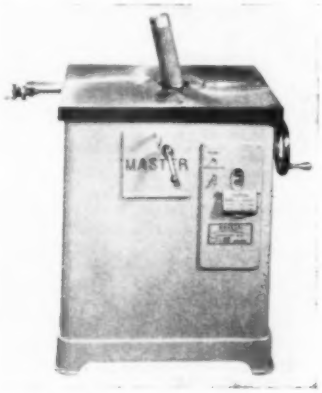
adjustable, heavy duty for nailing sides and bottoms to ends of various types of ammunition and industrial boxes no larger than 16" high, 16" wide and 26" long.

--Send FOR ILLUSTRATED BULLETINS

FOOD MACHINERY AND CHEMICAL CORPORATION *Packing Equipment Division*
RIVERSIDE, CALIFORNIA, DEPT. F

☐ *Industrial Nailer*
☐ *FC Nailer*
☐ *Screw Machine*
☐ *(AC-5A) Nailer*

NAME
ST. & NO.
CITY STATE
NM-1



Spindle Sander

Announcement is made of a new Spindle Sander and Grinder for wood, metal and plastics, incorporating several new and exclusive features.

The manufacturer states that this is the only spindle sander and grinder of its type that has a tilting spindle rather than a tilting table. The job on which the operator works is always in a horizontal position. The Master Spindle can be used oscillating or non-oscillating, can be tilted from 0° to 45° by a worm and gear unit, and can be securely locked in place at any desired position. Full details can be secured from the Kindt-Collins Company, Dept. W., 12653 Elmwood Ave., Cleveland 11, Ohio.

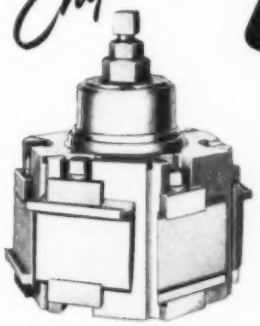
Resistance Heater

High speed edge banding at low cost is claimed for a resistance heater manufactured by the Washburn Electric Co., Dept. W, 96 Dwight Place, Englewood, N. J.

Washburn Resistance Heaters bring high heat concentration to glue joint areas by a simple and efficient method. The heating element is a flexible strip of durable, 24-gauge stainless steel which can be formed around sharp radii, corners, curves, etc. The heat is generated by passing a low

(Continued on page 68)

SHIMER
Engineered for Production
EASED EDGE HEAD



for clean, fast, low-cost
- EASED EDGING
- MATCHING
- PLAIN JOINTING
- SIDING
- SHIPLAP

Here is a ruggedly built cutter head designed for extreme long service under the severest cutting conditions, yet a head that can't be surpassed for ease in adjusting, accuracy in pattern cutting and versatility of use! Six-bit model (pictured) and four-bit model both equipped with self-centering feature and clearance-protected, milled-to-pattern bits that hold their pattern permanently! (Securely positioned bits are adjustable for various thicknesses of stock).

WRITE FOR YOUR FREE COPY OF OUR ILLUSTRATED PATTERN BOOK!
SAMUEL J. SHIMER & SONS, Inc.
70 RACE STREET • MILTON, PENNA.
SHIMER

PURE WHITE ASH STOCK

FURNITURE
CABINET
PANELING
HANDLE
BRUSH BACKS

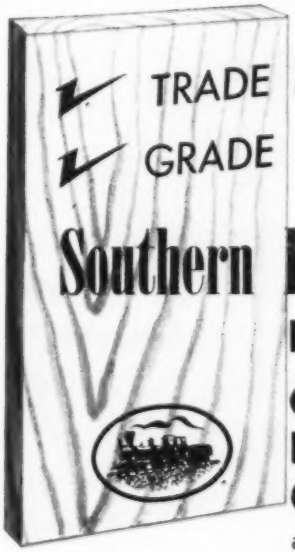
•

FIRM ASH
CABINET ASH
TOUGH ASH

The Atchafalaya Basin of Louisiana produces the most uniform white ash for color and texture in America. That's why the finest manufacturers use Port Barre White Ash.

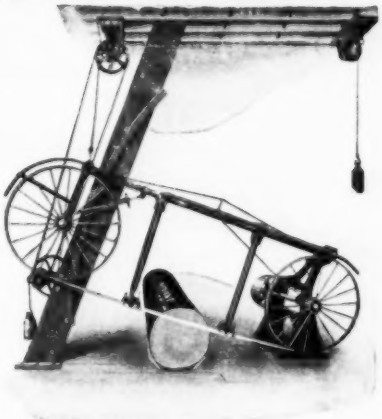
Large and well assorted stocks are ready for immediate mill shipments at all times. We can meet your exact needs, all thicknesses and grades 5/8" to 12/4". Prompt attention will be given to your inquiries.

The Port Barre Lumber Industries, Inc.
Manufacturers of Southern Hardwoods
Port Barre, La.



TRADE MARKED
GRADE MARKED
Southern Lumber
PINE
OAK
POPLAR
GUM
and other Hardwoods
USE OUR MIXED CAR SERVICE
W. T. SMITH LUMBER CO.
CHAPMAN, ALABAMA
67 YEARS OF MANUFACTURING YELLOW PINE AND HARDWOODS

"OLIVER" No. 316
BAND CUT-OFF SAW
for logs and timbers



Saves time . . . and dollars!

One owner found this "Oliver" Saw replaced two drag saws and saved six cutting-hours a day. It cuts logs, timbers, etc. in short lengths for shingles, staves, veneer stock—in fact, any cross-cutting formerly done with other types of saws. It is built in three sizes; the largest size cuts 60-inch logs. They are faster, use less power, and give years of dependable service with low maintenance costs. *Write for Bulletin No. 316.*

OLIVER MACHINERY CO., GRAND RAPIDS 2, MICH.

CHICKASAW
BRAND
Oak Flooring

SINCE 1905

STRIP PLANK BLOCK

UNFINISHED ★ PRE-FINISHED
Treads ★ Risers ★ Thresholds
Consult us about
Semi-Finished Oak
Furniture Dimension Stock
Straight or Mixed Carloads

MEMPHIS HARDWOOD
FLOORING CO.
1591 THOMAS STREET
MEMPHIS, TENN.

(Continued from page 66)

voltage current through the heating element. The low voltage current is supplied by converting 110 or 220V line current by means of a specially designed transformer.

Extra Duty Chain Saw

The extra-duty chain saw, the DH-120—is again available for civilian use, it was recently announced. It is manufactured by Henry Disston & Sons, Inc., 18 G Tacony, Philadelphia 35, Pa.

Unavailable to dealers since defense contracts brought on by the Korean campaign diverted Disston's inventory to the military, the 12-horsepower units are on the market once more as a result of expanded production of powerheads and guide rails.

New Wood Preservative Bulletin

An up-to-date compilation of specifications for the use of pentachlorophenol wood preservative issued by state, federal and armed forces agencies is available from the Monsanto Chemical Company, Dept. W., St. Louis 4, Mo.

The 17-page bulletin contains 60 specifications and an abstract of each, including several by utilities, associations and regional groups. They range from specifications for the chemical itself to formulations for treating structural lumber and poles.

New Coffing Hoist-Binder

Safety, convenience and simplicity of operation are stressed in the new Hoist-Binder announced by Coffing Hoist Co. of Dept. W., Danville, Ill. Since this load binder works on the ratchet hoist principle, it will take up

it's "tailor-made"
KILN DRYING
for your product

"SPECIFICATION"
CUSTOM
KILN DRYING

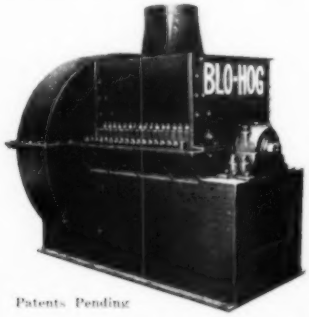
The finest in "Specification" drying of Western Woods, Hard and Soft Domestic and Imported woods.

FOR AIRCRAFT, TECHNICAL AND OTHER EXACTING OR REGULAR USES... IN ANY PRODUCTION

Resawing, Surfacing, Pattern Cuts, Smooth-end trim. Save on dry freight weight vs. green. Pattern items cut waste, freight. Transit rates on R.R. shipments. 5 automatic C.C. Kilns operated by Trained Engineers. Drying up to 50-ft. lengths, up to 6 in. thick.

LET US HELP ON YOUR WOOD DRYING PROBLEMS, SAVINGS
A PROVEN SOURCE OF QUALITY CUSTOM KILN DRYING

LUMBER MANUFACTURERS INC.
Cable Address: Lumac
Long Distance—SU 1101
for Gordon Wilkinson, Pres.
2536 S.E. STEELE ST. PORTLAND 2, OREGON



Patents Pending

MONTGOMERY BLO-HOG
Eats Up Everything

. . . including Pine, Oak, Gum, Hickory, Elm, Wet Veneer Round-up and Sandy Bark.

Conveyor-fed, no attendant is required to "feed the hog."

Sturdy breaker lugs give absolute protection from major damage caused by tramp steel.

Maintenance costs unbelievably low.

Write for bulletin and details.

Jacksonville Blow Pipe Co.
Jacksonville, Florida

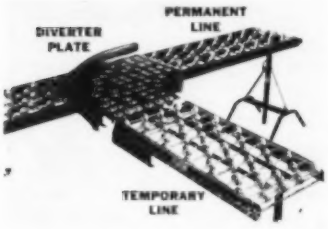
or slack off a load chain any amount up to a full 20 ½ inches—or more if a longer chain is used in the binder.

According to the manufacturer, this advantage over eccentric type binders is especially important with "springy" loads where the binding chain or cable must be tightened by force through considerable distance in order to fully secure the load.

Working Height Lifter

Lewis-Shepard Products Inc., Dept. W., 194 Walnut St., Watertown 72, Mass., announces a new addition to their "Master" line of Materials Handling Equipment—The Working Height Lifter.

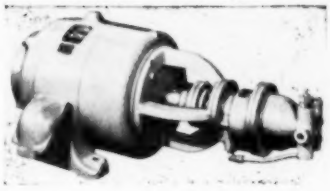
As the name implies this new piece of positioning equipment keeps the work at convenient working height thus eliminating unnecessary lost time and reducing operator fatigue and danger of injury. Lifting, stopping and lowering of the load are controlled by remote pedal switches which can be conveniently located since they are mounted on a single steel plate at the end of a 15 foot long heavy duty rubber electrical cord.



New Flow Diverter

A Flow Diverter that connects at any point on a permanent line of Rapid-Wheel gravity conveyor to move cartons in and out of storage bays without manual handling has just been developed by The Rapids-Standard Company, Inc., Dept. W., Grand Rapids, Michigan. Temporary spur lines can be set up quickly and easily on either side of a main conveyor line with this new attachment.

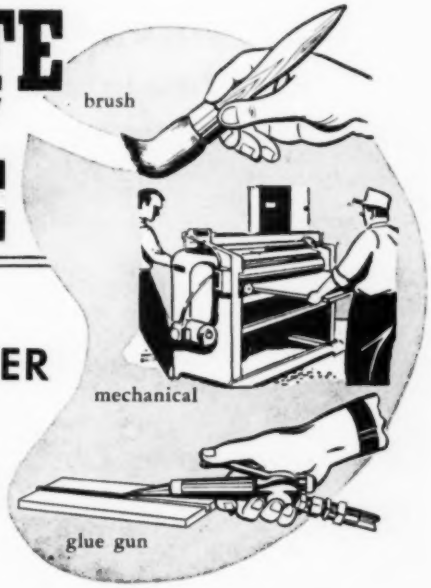
The Flow Diverter kit is made up of a connecting yoke fastened to a 3-foot section of aluminum Rapid-Wheel; and a slotted aluminum Diverter Plate which has conveyor wheels projecting slightly above the surface. An adjustable curved aluminum guard rail also is included in the kit.



New Constant Delivery Pump

Simplification and compactness are exemplified in Oilgear's three New Heavy-Duty Type "HC" Axial Roll-

MONITE
"3-day"
GLUE



SPREADS UP TO
30% FARTHER
by • HAND
• MACHINE
• GLUE GUN

The CASEIN GLUE with 3-DAY POT LIFE!

MONITE "3-DAY" Casein Glue has good water resistance and great strength, 'stainsless', and remains usable 3 days or more.

SPREADS EASILY by brush, gun or mechanical glue spreader.

SPREADS up to 30% FARTHER than ordinary casein glues.

LOW pH means practical freedom from glue stain on woods such as oak.

INVESTIGATE the savings in time and material you can make with MONITE "3-Day" Casein Glue.

H. L. Prestholdt, Pres.

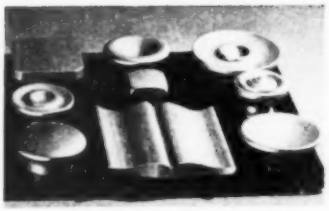
TRADE MARK MONITE WATERPROOF GLUE

WRITE TODAY FOR FREE TEST SAMPLE!

MONITE WATERPROOF GLUE COMPANY
1628 NORTH 2ND, MINNEAPOLIS 11, MINNESOTA

ing Piston Pumps. These designs have fewer working parts. They operate quietly at speeds up to 1800 rpm. Coupled with pressure and flood lubrication by the high grade oil system, they set new standards of service and endurance for pressures up to 3000 and 5000 psi.

These heavy-duty units are of the fixed stroke type, the volume of oil delivered varying with the drive shaft speed. Oil is delivered in one direction. For further information, write The Oilgear Company, Dept. W., 1560 West Pierce St., Milwaukee 4, Wis.



Simulated Metal Finish

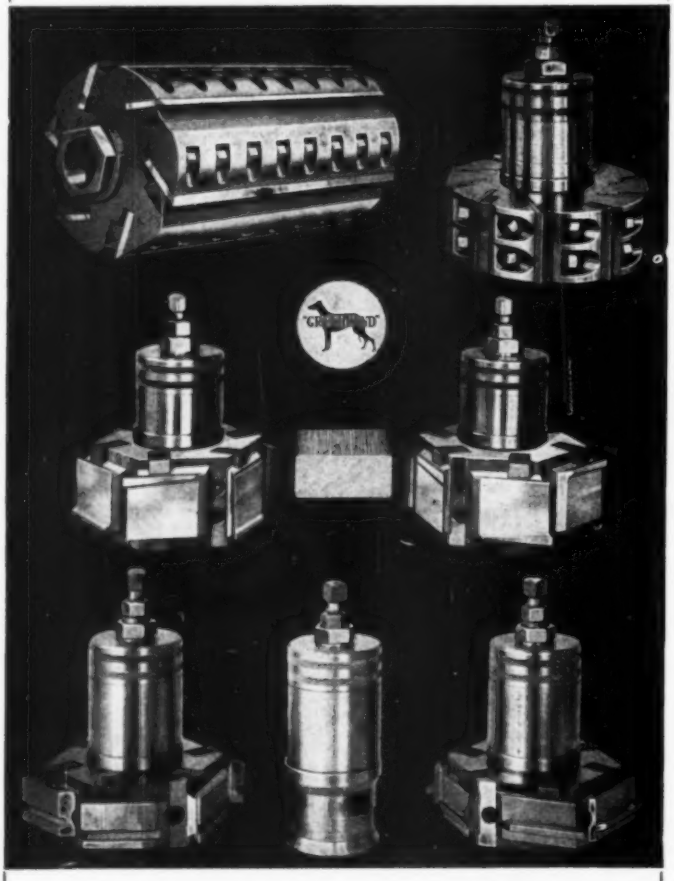
A new simulated metal finish for wood products which permits conservation of critical metals used in accessories for radio and television cabinets, furniture and many other products was announced by Warsaw Products, Inc., Dept. W., Warsaw N. Y. The new finish is different from ordinary metallic finishes in that it will retain luster and metallic appearance even after the severest usage.

American Woods, a New Reference Manual

American Woods is an unusual book in which the emphasis is placed upon the beauty, workability and utility of woods of the United States, for the use of craftsman, designer, and artist. It offers in one volume information as to the general characteristics of the tree, the locality in which it may be found, the use to which its wood is now being put, and particularly the properties of the wood as to color, figure, grain and workability.

The book is richly illustrated with 24 full-color and 48 black and white plates of the wood specimens and 20 full-page plates of representative trees. The book is 7 x 10 inches—cloth bound and stamped in gold. Available from Vance Publishing Corp., 139 N. Clark St., Chicago 2, Ill., at $7.50 per copy.

CUTTER HEADS - - - For Every Possible Requirement



Jones & Orth Cutter Head Co.

SEATTLE 14, WASHINGTON MEMPHIS 3, TENN.

Try

VIRGESON'S ONE STOP LUMBER SERVICE!

You can now place your orders with us for your entire lumber requirements . . . all types and species.

- Southern, Appalachian and Canadian Hardwoods
- Yellow Pine
- Glued up and cut to size dimension stock
- West Coast Products

We'll fill your orders with the right choice quality lumber from modern mills to the right use. Send us your requirements today.

JOE VIRGESON LUMBER CO., INC.

COLUMBIA, SOUTH CAROLINA
P. O. Box 744, Phones 5165-5166

New Metal Fastener

Burr-Lock is a new metal fastener designed to join wood and other materials. The burr is a steel ring having sharp pronged edges. It may be pressed or driven into materials which are to be joined. The Burr-Lock may be used with or without nails or glue and the manufacturer says that according to bend tests Burr-Lock will strengthen nailed joints more than 50%. Further data and engineering help is offered by Metal Industries, Inc., Dept. W., Burr-Lock Division, Youngstown, Ohio.

Dura-Wood Block Flooring

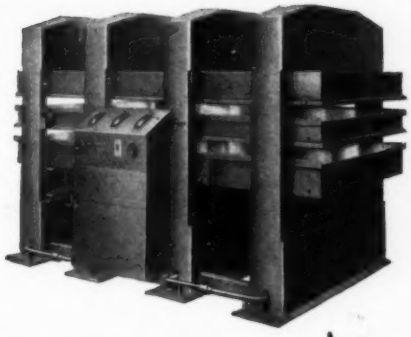
Dura-Wood Block Flooring is announced as a product particularly suited to the need of a heavy-duty industrial floor (to be laid over concrete slab) that will take the wear, tear, and abuse required in industrial plants.

A floor economical in first cost as well as over the years, Dura-Wood withstands the roughest wear because it is made of tough, long-wearing hickory and pecan . . . close grained heavy hardwoods that resist wear and abrasion. A floor of this type will last indefinitely. It will not powder, dust, crack or wear away like many hard-surface floors. For complete information, write the E. L. Bruce Co., Dept. W., Memphis, Tenn.

Cedar Shake Unit

A new cedar shake machine was put into operation at the Portland Shingle Company. The machine was constructed in the company's shops. The new machine stains and drys the shakes after they leave the grooving machines. Staining is done by means of heavy fiber brushes which pick up the stain from a reservoir and brush-coat it on the raw shakes. An endless conveyor belt carries the freshly stained shakes under a line of heat lamps which dry the stain. The staining and drying unit is over 40 feet long and is constructed in four sections. As the shakes leave the machine they are ready for packaging and shipment.

the modern design



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ACTUAL PRODUCTION ADVANTAGES

The modern design of the "VB" Press gives you savings in glue, veneer and labor. After-drying storage space is eliminated and the smoother surface of panels produced eliminates sanding and finishing costs. Compactly constructed, the "VB" Press requires no pit; giving the user a wide choice of placement for more efficient production.

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NAMES . . . EVENTS

(Continued from page 44)

P. A. WELDING, professor of civil engineering at University of Maryland and ROBERT J. MILLER, wood technologist have joined the laboratory staff of the Timber Engineering Co., Washington, D. C.

GUY H. HUGHES has resigned as sales manager of Meadow River Lumber Co., Rainelle, W. Va., and has acquired an interest in the Tabor City Lumber Co. of Tabor City, N. C. and is joining them as executive vice-president.

THOMAS F. GLEED prominent Seattle lawyer succeeds WM. G. REED as president of Simpson Logging Co., Seattle who will devote himself in the future to his duties as Chairman of the Board. C. H. BACON JR., becomes Vice President in charge of operations; C. E. DEVLIN, vice president in charge of sales; C. L. EMERY, assistant sales manager in Seattle.

BELDON C. KELLER of McMinnville, Oregon has joined Pickering Lumber Corp. as executive Vice President.

JAMES F. HAMILTON, past president of the Forest Products Research Society has joined U. S. Bobbin & Shuttle Co., Lawrence, Mass as Director of Research.

PROF. NELSON C. BROWN, who retired in June after 34 years on the faculty at State University College of Forestry, Syracuse, N. Y., has been named Professor Emeritus of Forest Utilization at the College.

CARLTON ELLIS, JR., has been appointed Director of Sales of the Plaskon Division, Libbey-Owens-Ford Glass Co., Toledo, Ohio.

ALBERT H. FROST and ROBERT J. LINNEBURG, veteran plywood specialists, have been named managers of the Chicago and Detroit branches, respectively, of United States Plywood Corp., New York, N. Y.

Associations

ASSOCIATION OF MANUFACTURERS OF WOODWORKING MACHINERY will hold their fall meeting in the Blackstone Hotel, Chicago, September 20 and 21, 1951.

JAMES V. SILL, W. W. Kimball Co., Chicago, Ill., was elected President; HENRY Z. STEINWAY, Steinway & Sons, New York, N. Y., Vice-President, and J. F. FEDDERSEN, Jesse French & Sons Division H. & A. Selmer, Inc., Elkhart, Ind., Treasurer of the National Piano

Manufacturers Association, Inc., Philadelphia, Pa.

SOCIETY OF AMERICAN FORESTERS will hold their 51st Annual Meeting in the Vista Hotel, Biloxi, Miss., December 12 - 15, 1951.

AMERICAN SOCIETY OF TOOL ENGINEERS will hold their 1st South Central Area Conference in Evansville, Ind., October 19 and 20, 1951.

THE LAKE STATES LOGGING CONGRESS will be held at Marquette, Michigan, September 27, 28, 29. It is sponsored by the Timber Producers Association, Box 431, Ironwood, Michigan.

The 54th Annual Convention of the NATIONAL HARDWOOD LUMBER ASSOCIATION will be held in Chicago, Ill., September 25th to 27th.

NATIONAL PLYWOOD DISTRIBUTORS ASSOCIATION fall section meetings will be held as follows. West Coast—Multnomah Hotel, Portland, Ore., October 25, 1951; Midwest: Edgewater Beach Hotel, Chicago, Ill., November 5, 1951; Eastern: Commodore Hotel, New York, N. Y., November 12, 1951; Southern—Monte Carlo Hotel, Miami, Fla., November 19-20, 1951.

WOOD PRESERVING SAFETY MEETING will be held in the Congress Hotel, Chicago, October 9, which is during the week of the annual convention of the National Safety Congress.

Miscellaneous

HANCHETT MFG. CO., of Big Rapids, Mich., has expanded its plant production through the addition of a 50 ft. by 450 ft. assembly space equipped with modern machinery and production facilities.

CROSWELL HARDWOOD CO., Meridian, Miss., has now established a Grand Rapids office in the Michigan National Bank Bldg., Grand Rapids, Mich. HAROLD B. BOSTWICK is appointed Manager.

PICAYUNE WOOD PRODUCTS CO. has recently been incorporated in Picayune, Miss. with OLE FAHLIN, President; B. WHITFIELD, Secretary-Treasurer; J. E. MITCHELL, Vice President.

NORTH CAROLINA STATE COLLEGE, School of Forestry, Raliegh, N. C.,

(Continued on page 74)

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Rotary, Sliced, & Half-Round

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In The Following Species:

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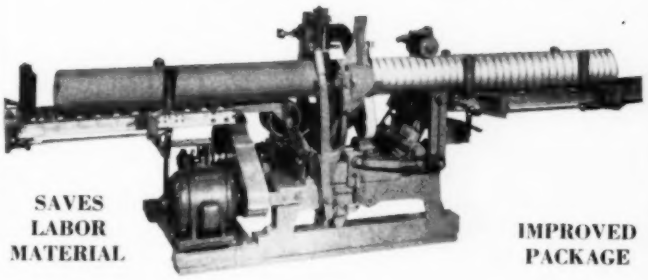

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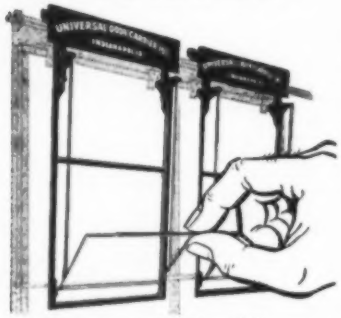

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Universal **DOOR CARRIER, INC.**
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(Continued from page 73)

will conduct a five-day course in statistical quality control as applied to wood products manufacture, September 10 to 14, 1951.

UNIT STRUCTURES, INC. Pesatigo, Wis., has formed a subsidary corporation to operate a wood laminating and fabrication plant at Magnolia, Ark.

JAMESTOWN VENEER & PLYWOOD CORP. was accorded Membership in the Rice Leaders of the World at a ceremonial dinner in Hotel Jamestown, Jamestown, N. Y. in mid-July. F. WALTER MUELLER, Vice-President of the Rice Association, made the presentation.

E. C. ATKINS & Co. have assigned the rights to manufacture and distribute Atkins Electric Chainsaws to L-M Equipment Co., Portland, Oregon.

THE CHAPMAN MANUFACTURING CO. hardboard plant at Corvallis, Oregon has been sold to a group of business men. The sale involved more than a million dollars. Former owner RALPH CHAPMAN plans to set up Chapman Forest Utilization as consultants and developers of the other Forest products.

THE BAY DE NOQUET CO. of Nahama, Michigan in operation since 1881 closed down its sawmills on July 23, 1951 permanently. The entire mill town site is for sale.

AMERICAN MANUFACTURING CO., Inc., Tacoma, Washington are opening a South-eastern office at Greensboro, N. C. HENRY H. KEENAN heads this office.

WOODICTIONARY

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Sales Office—135 So. LaSalle Street, Chicago—Hardwood Lumber, Dimensions Dry Kilns and Planer.

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*Goodman Lumber Company - - - Goodman, Wis.
Northern Hardwoods, Hemlock, White Pine, Basswood, Cedar Shingles. Planing mill. Dry kilns. Rotary cut veneers.

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*†Yawkey-Bissell Corp'n - - - - - White Lake, Wis.
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*Michigan Pole & Tie Co. - - - - - Newberry, Mich.
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Connor Lumber Land Co. - - - - - Marshfield, Wis.
(Mills: Laona, Wis., Connorville, Mich.)
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AAA Brand Hardwood Flooring
Northern Hardwood, Hemlock and White Pine
Dry Kilns Planing Mill

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WOOD SALUTES

(Continued from page 21)

Nelson C. Brown

the educational pioneering at Syracuse.

In 1917 Mr. Brown went to Europe as a member of the Lumber Trade Commission and later served in the Tenth Regiment of Engineers—Forestry, in France, with the American Expeditory Forces.

Returning to this Country, Mr. Brown engaged in the lumber business and in consulting forestry. In 1920, he went back to Czecho-Slovakia as a forestry consultant for the New Republic. Returning in 1921 to the Forestry College at Syracuse, he has continued as Head of the Department of Forest Utilization until his retirement in June 1951, having served some 39 years with the exception of four years during the war and in business.

Since 1914, he has published a number of books dealing with Logging, Lumber, Forest Products, and associated topics, which have been widely used and accepted as textbooks. He also contributed numerous articles for technical, scientific and popular magazines.

At Syracuse, he was Chairman of the Syracuse and Onondaga County War Council in the last world war, President of the Salvation Army Board, President of the Sons of the American Revolution, and assisted as coordinator in the Civilian Conservation Corps program from 1933 to 1936. In 1944 and 1945 he was Chief of the forestry division Allied Control Commission for Italy, in Rome. He holds the decoration Knight of the Royal Crown of Italy. He has served as a consultant to many lumber and logging concerns and private timberland owners.

Fred Gottschalk

way Engineering Association and the American Society for Testing Materials also keep him busy.

Jobs with the American Creosoting Co. and engineering duties in New Mexico preceded his affiliation with American Lumber and Treating. During World War II, he went to Germany, Holland, France, Norway, Sweden, and Denmark with the Army-Navy Mission as chief scientific officer to establish German wartime developments in wood preservation, sawmilling, and seasoning.

A packed suitcase and foreign address have become hallmarks recently as Fred has been doing considerable traveling for his firm down Latin America way.

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The Woodcraft Corporation
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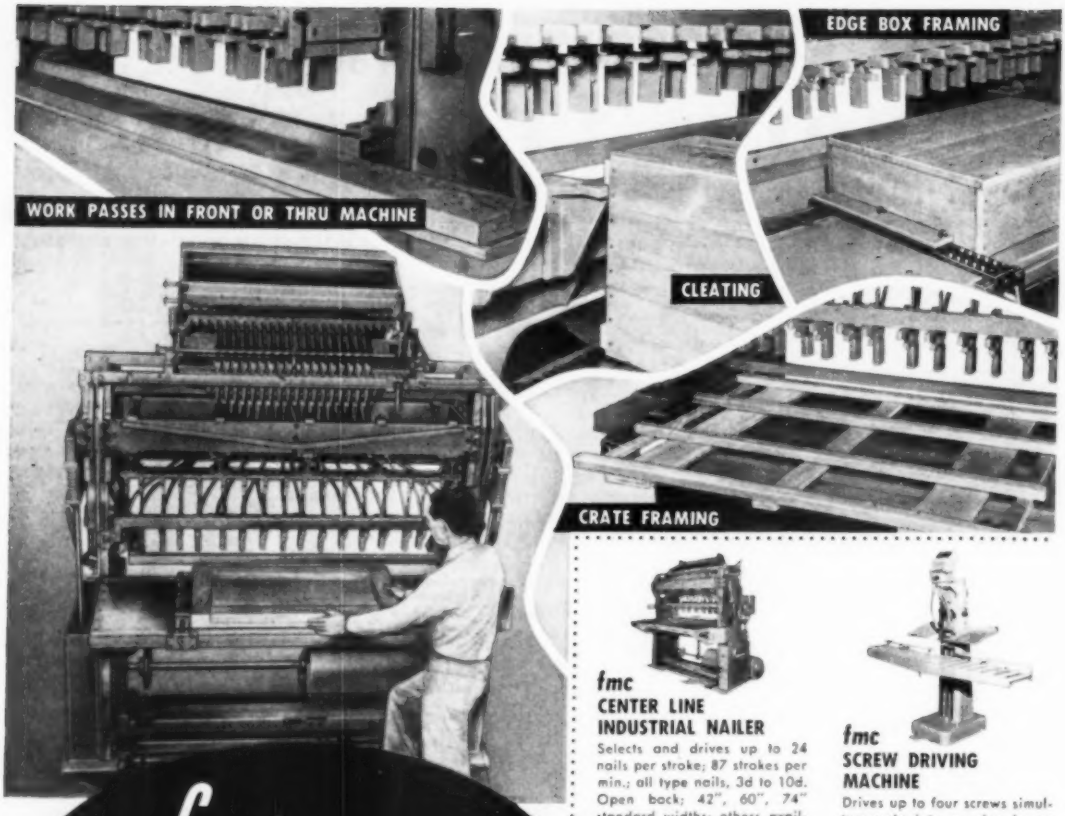

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How to Make The Perfect Crose

A discussion as to what constitutes a perfect crose in a tight barrel

By
Joseph B. Wagner

This matter of a perfect "croze" in a tight barrel is a subject that requires straight, old-fashioned thinking, as well as careful workmanship on the part of those who are responsible for the quality put into the barrel as manufactured by their particular barrel plants. While this important operation not only demands accurate grinding and "setting" of the several knives in the cutterhead, it also requires a constant and watchful check on the barrels as they leave the crozing machine in order that the completed barrel will in reality be a *tight* barrel in so far as the croze is concerned, and, so that it will give the satisfaction expected from it by its ultimate user.

In this article we will attempt to explain what in our estimation constitutes a perfect croze, but, in doing so it is not necessary to go into a lengthy statement as to the effect of an imperfect croze on the fitness of a tight barrel to prove a satisfactory shipping container for liquids, for without a correct or perfect croze it cannot in reality be considered *tight*, and there is no other fault that can create so much dissatisfaction to its user. This is fully realized by both the manufacturer and his customer.

"Chime" Should Be Stout and Hardy

Before an attempt is made to answer this debatable question as to "what constitutes a perfect croze", it may be well to state that one of the important points in the manufacture of a tight barrel or keg to be considered, is that the "chime" as a whole should be stout and hardy enough to withstand the wear and tear of shipment without breaking *after* the barrel has been filled with its contents. In other words, there should be no more wood cut away than is necessary to make a satisfactory "howell" and "croze." This amount of cutting away should only be about *one-third the thickness* of the staves, measuring from the *back* of the croze to the *inside* of the stave. If it is greater than this amount, it is a true indication that the barrel heads are *too large in diameter* for the size of the head truss hoops used. Therefore, either the diameter of the barrel heads should be reduced or that of the head truss hoops increased, if the "chime" is to remain at its present length.

Then again, a perfect croze cannot be cut in a barrel when some of the head truss hoops are more or less oval-shaped or partly so, which very often is the case, for when a barrel is revolved in the crozing machine, the cutter-heads when in action will cut out a *true circle* on the inside of the barrel ends. Therefore, it is clearly evident, if oval-shaped head truss hoops or hoops that are not perfectly round are used to form the barrel, the barrel ends themselves will also be oval-shaped or out-of-round. When a true circle is cut *inside* this more or less oval, certain portions of the barrel end will be cut away unnecessarily, making a thin and weakened chime, which with any one of the many end shocks a barrel is subjected to during shipment may cause broken chimes. To guard against this, the head truss hoops should be examined periodically, and all those which are not a true circle or are otherwise bent, should be taken out of service and reshaped.

Now then, taking it for granted that the barrel ends are not cut away unnecessarily in making the chime and croze; that the head truss hoops used are definitely a true circle, so that the completed chime will be strong and of an even thickness throughout; we are now in a position to discuss intelligently this question: "What is a perfect croze in a tight barrel?" as we have a good foundation to work on.

This question of a perfect croze may be answered briefly by stating that the croze itself should be neither too wide nor too narrow; too deep nor too shallow; it should have smooth sharp edges along its throat or opening; and be straight its entire length.

Assuming the above specifications to be correct, which no doubt they are, the next question undoubtedly would be: "What is the proper width and depth for such a croze?" Before answering this important question it is necessary to state that this, as well

(Continued on page 81)

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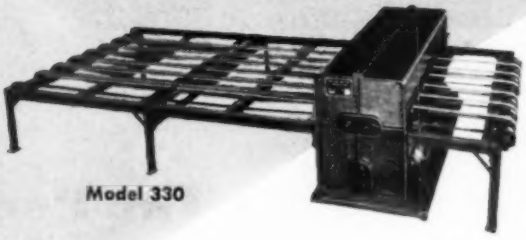

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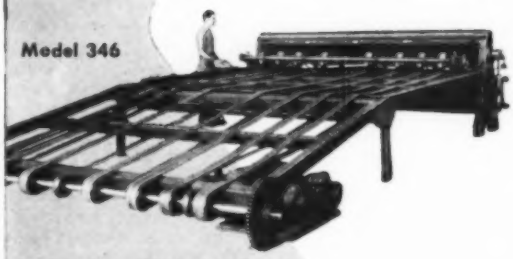
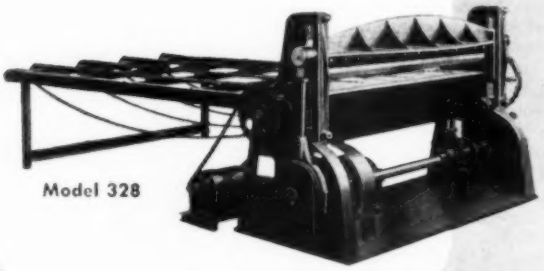


Model 346



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Coe Model 330 Automatic Panel Clipper. Multiple Knife for sizing single sheets of veneer in motion. Position of cuts are selected by means of a timing chain moving at same speed as veneer.

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(Continued from page 79)

as many other equally important points in tight cooperage practice seem to be a matter for each individual to decide for himself, as there never has been an *exact standard* set. Still there must be a one best way to do all things, and it is the opinion of some able operators and of this writer as well, that a perfect croze should be *equally as deep as it is wide* and, as the width of the croze is entirely dependent upon the thickness of the "head" on the bevel of the head used, it should be good practice to make this width just a *trifle wider* than the "head", so that the sharp edges of the croze will firmly grip the bevel of the head just *before* the "head" is pressed into the back of the croze. A perfect croze will then readily identify itself by its markings on the bevel of the head in the completed barrel. This should be a firm "bite" around the entire head, both on the *outside* and *inside* of the bevel. When this appears you have a correct croze in the barrel, provided of course, that the back of the croze indicates that the "head" of the head has been firmly pressed against it.

We have so far explained what constitutes a perfect "croze", but have not yet mentioned the "howell", without which a perfect croze would be an impossibility. The shape of this howell knife is another point in tight barrel manufacture upon which few men seem to agree. In recent investigations by this writer he found it was difficult to distinguish in some barrels where the howell left off and the croze began, as they were so closely merged together. The howell knife in one particular instance noted being ground to a long tapering point, its entire form closely following the shape of the bevel on the head used. The sharp point of the howell knife (believe it or not) cutting away almost one-half of the croze proper. This is an extreme case of course, in which the originator apparently endeavored to make the howell itself serve partly as a croze.

In another case observed, the howell knife was ground with very little circle or almost flat, which is at the other extreme but more in keeping with the true function of the howell than the one mentioned in the previous paragraph. Between these two extremes there was found many variations, all of which were undoutedly considered ideal, and apparently gave a certain satisfaction to their sponsors. But in this also there must be one ideal shape in which the howell knife should be ground in order to secure maximum satisfaction. Furthermore, is this not the duty of the Cooperage Association to determine this best way, and advise its members so there will be some uniformity in these practices to the advantage of all?

Now this writer contends, that the howell and croze each perform separate and distinct functions in the formation of the completed chime, and in order that perfect satisfaction is to be gained so far as quality in the barrel is concerned they should each perform their part individually and not over-lap. Therefore, as the real function of the howell is to smooth or straighten the inside surface of the barrel end *only*, so that the croze itself will be of an even depth throughout, and its edges true and sharp for its entire length, it seems that this howell knife should be ground with about a ¾-inch point, measuring from the side of the knife nearest the chamfer to the tip of the point.This point should then be located slightly off center, or nearer the chamfer and exactly in the center of the croze. The other side of the knife, or the one making the inner part of the howell, should be ground away slightly more than this amount, so that when a barrel head has not entirely entered the

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croze, if the head is given a sharp tap with a hammer opposite the point where it is disengaged, it will promptly slip into the croze.

Now then, with the howell knife ground as indicated; the croze cut in the manner specified; the completed chime of even thickness throughout; and about two-thirds the thickness of the staves still remaining back of the croze. This combination as a whole, in the estimation of this writer constitutes a "perfect croze."

There is one other point upon which we have so far said nothing. This is the "chamfer", or as is sometimes called the "chime." While this has no bearing whatsoever on a perfect croze, being merely intended to "dress up" the ends of the staves, it is a part of the completed chime. The shape of chamfer depends entirely upon the use to which the barrel will be put. If it is to be used as an oil barrel, the practice is usually to cut it very short and blunt. The reason for this is to increase the capacity of the barrel to the utmost, as this short chime or chamfer brings the barrel head up close to the ends of the staves. It also makes a stronger chime which lessens the possibility of breakage at this point, both of which are considered essential in an oil barrel.

If the barrel is to be used for a product such as meat, fish or other bulky product wherein one of the barrel heads must be removed to facilitate filling the barrel, this chamfer is usually made long, and with an angle so that when the barrel has been filled with its contents, the head can be more easily forced into place from the outside without too much effort. This type of chamfer is also preferred on whiskey barrels so that the head may be forced down over the chime and into the croze from the outside without disturbing the "char" in the barrel. A slanting chamfer is also sometimes preferred on barrels for export shipment, as it gives a better opportunity for the hoisting hooks to take a firm hold upon the barrel ends in taking them aboard ship.

Container Demand on Increase

Shortages of Dry Lumber, Veneer, Steel Hoops, Wire, Nails, Expected to Ease During Third Quarter.

Wooden Containers

An increasing demand for wooden containers was reported over the last quarter of 1950, with some DO orders being registered, according to the United States Department of Commerce. Production for the industry increased slightly over the preceding quarter at the expense of depleting inventories.

Producers continued to operate well below capacity because of raw material shortages. Competitive bidding by plywood manufacturers, added to adverse logging conditions contributed to a continued shortage of lumber. Veneer was particularly short and instances were reported of inferior quality; some relief of this situation is anticipated during the third quarter as more dry lumber becomes available.

Supplies of wire and nails were reported very tight. Instances of paying retail prices for nails were reported. Shortages of hoop steel and rivets presented a major problem to coopers.

(Continued on next page)

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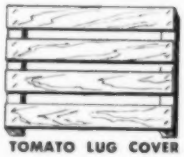
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Nailed Wooden Boxes and Crates

Demand for wooden boxes and crates increased considerably over the last quarter of 1950. Although demand was generally high, a decrease was noted in the volume of inquiries. The backlog varied from 60 to 90 days. Production increased approximately 35 percent over the first quarter of 1950 and 10–15 percent over the last quarter.

Logging conditions generally improved in the first quarter with a consequent increased output of logs. Although the industry is still short of dry lumber, relief from this situation is expected during the third quarter when the eight-month drying season should provide an increased supply. Inventory of materials was low although adequate. Steel was in short supply.

Wirebound Boxes and Crates

First quarter 1951 shipments of wirebound boxes and crates were valued at $17,594,389, an increase of 51.5 percent over the same period of 1950 and $1,201,634 over the fourth quarter of 1950. The number of units produced in the first quarter was 117.8 percent over those produced in the same period of 1950. However, the first quarter 1951 production was 85.2 percent of the preceding quarter. The dollar volume was 96.7 percent of the fourth quarter of 1950. The difference between unit and dollar volume comparison was largely due to high proportion of poultry and meat containers in the fourth quarter, which resulted in a lower average unit value for the period.

Demand increased significantly but was met by depleting raw material inventories. Although veneer inventories at the end of the fourth quarter of 1950 were up one percent over the end of the first quarter of 1950, March 31, 1951 inventories were down 30 percent from a year ago. Consumption was 23 percent over the initial quarter of 1950. Adverse logging conditions and a heavy demand by plywood manufacturers reduced the supply of veneer to a critical stage.

This situation is expected to ease during the third quarter. Lumber supply was generally satisfactory although dry lumber was difficult to obtain.

In addition to veneer, wire was in very short supply—particularly galvanized. Black wire was being substituted for galvanized; also smaller gauge wire was used. Advance buying of production materials was necessary.

Slack Cooperage

The demand for slack barrels and kegs increased with a resulting delay in delivery schedules. Production is expected to be greater in the third quarter. The extent of this increased output of slack barrels and kegs is dependent upon the availability of staves, headings, steel hoops, and rivets. Industry estimates indicated that 1951 production will surpass 1950 by approximately 30 to 35 percent.

Hoop steel and rivets were very difficult to obtain. Inventories of these production materials were depleted and replenishment was slow. Staves and prime headings were likewise in short supply. Adverse weather, outbidding for logs by other wood consuming groups, and a depressed price on staves occasioned these shortages. Some producers were only able to procure the lumber that sawmills and

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More than 23 million acres of woodland are certified under the American Tree Farm System to grow trees as a farm crop.

(Continued from page 83)

plywood mills could not use. These factors also resulted in the more expensive and better grade staves going into barrels.

Plants located in defense plant areas were feeling the labor market tightening.

Tight Cooperage

The situation of the tight cooperage industry in regard to material supplies is analogous to that of slack barrel and keg manufacturers. Shortages of steel hoops and lumber constituted major problems. Inventories of hoops were depleted and replacement shipments were delayed or, in instances, curtailed. The supply of logs was similarly short. Increased competition for logs from plywood and paper manufacturers, plus unfavorable weather conditions, resulted in a reduction of inventories of staves and headings in the bourbon grade to a point where the production of beverage barrels was seriously affected. The lack of demand and low prices resulted in smaller production of oil grade staves and headings.

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First quarter production declined from the first quarter of 1950 but was sufficient to meet demand. However, an increase of output in subsequent quarters over similar quarters of 1950 is necessary to meet the demand from expected heavier crop yields.

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Conkling Co., The Frank A.	81
Darlington Veneer Co., Inc.	62
Delmhorst Instrument Co.	53
Diamond Iron Works, Inc.	63
Diehl Machine Works, Inc., G. M.	35
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Fordyce Lumber Co.	43
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Greenlee Tool Co.	60
Hartzell Propeller Fan Co.	88
Hawker Mfg. Co.	52
Henry Weigand Corp.	81
Hermance Machine Co.	12
Huther Bros. Saw Mfg. Co., Inc.	54
Jacksonville Blow Pipe Co.	68
Jamestown Veneer & Plywood Corp.	41
Joe Virgeson Lbr. Co.	70
Jones & Orth Cutter Head Co.	70
Kiek Institute	75
Lane Manufacturing Co.	58
Laucks Laboratories, Inc.	20
Lovsted & Co., Inc., C. M.	65
Lumber Manufacturers, Inc.	68
Manufield Hardwood Lumber Co.	42
Mattison Machine Works	39
Mauk-Seattle Lumber Co.	5
Memphis Hardwood Flooring Co.	68
Mereen-Johnson Machine Co.	16
Meyers Co., Inc., W. F.	61
Midwest Walnut Co.	75
Mitts & Merrill	65
Moisture Register Co.	12
Monarch Hardwood Lbr. Co.	10
Monite Waterproof Glue Co.	69
Moore Dry Kiln Co.	55
Morgan Manufacturing Co.	72
National Casein Co.	59
National Lock Co.	38
Nelsonite Chemical Products, Inc.	15
Nickey Brothers, Inc.	55
Oliver Machinery Co.	67
Pacific Mutual Door Co.	25
Penokee Veneer Company	73
Perkins Glue Co.	87
Pierce Wrapping Mch.	73
Plasken Div., Libby-Owens-Ford Glass Co.	18
Port Barre Lumber Industries, Inc.	67
Radio Receptor Co., Inc., Thermatron Div.	44
Reichhold Chemicals, Inc.	26
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St. Joe Machnies, Inc.	82
Saranac Machine Co.	83
Shimer & Sons Inc., Samuel J.	67
Smith Lumber Co., The Ralph L.	61
Smith Lumber Co., W. T.	67
Standard Dry Kiln Co.	51
Stanley Works, The	19
Stephen Jerry & Co., Inc.	83
Stewart Lumber Co., E. A.	64
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Timber Engineering Co.	74
Twin-Fast	37
Universal Door Carrier, Inc.	74
Wallace, Inc., Don B.	63
Wapakoneta Machine Co.	63
Wheland Co., The	22
Whitney & Sons, Inc., Baxter D.	2
Wisconsin Knife Works	65
Wisconsin-Michigan Northern Hardwoods	75
Wood Turnings	77
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they have reasons!

It isn't accidental that so many of America's leading furniture and plywood manufacturers use Perkins Glues. They have good reasons for insisting that the glue they buy carry the Perkins Trade Mark. Reasons like . . .

dependability

For over a half-century Perkins Glue Company has been manufacturing wood glues. No "johnny-come-lately" in the field, Perkins has a background that commands respect throughout the industry.

quality

Every pound of Perkins Glue—be it resin, casein, or vegetable—must meet exacting standards before it is released for sale by the Perkins Laboratory. Uniform quality is assured.

service

Throughout the United States and Canada there are Perkins representatives stationed in strategic locations for the servicing of glues. These men are factory-trained and plant-wise, ready and able to help you before the need arises!

specialization

Glue for woodworking is the sole interest of the Perkins Glue Company. Undivided attention to your gluing problems is assured when you buy from a specialist in the field!

unbiased

Since all leading types of wood glues are manufactured by Perkins you are sure of an unbiased recommendation when you seek advice. There is no prejudice in favor of one type of glue because Perkins makes them all and is interested only in seeing that you get the right type for your job.

P

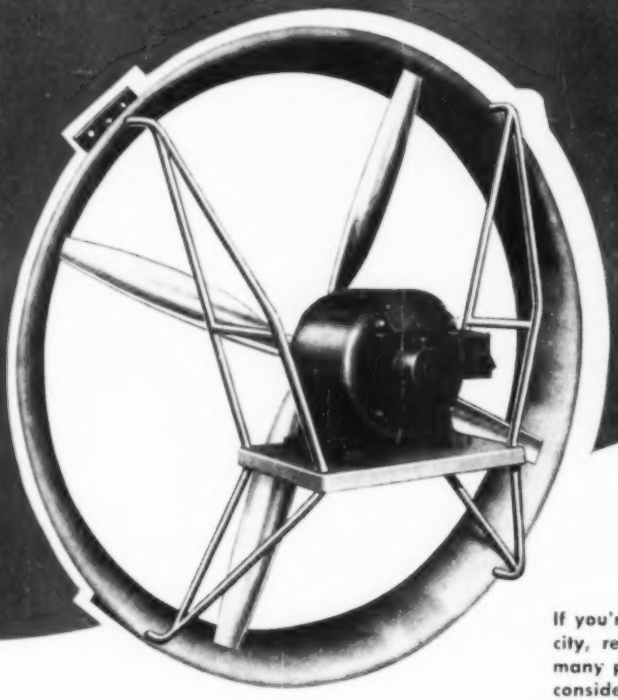
PERKINS GLUES

PERKINS GLUE COMPANY

Manufacturers of Resin, Casein, Vegetable, and Liquid Hide Glues

LANSDALE, PENNSYLVANIA • HIGH POINT, N. C. • KITCHENER, ONTARIO

Boost your drying capacity with HARTZELL dry-kiln equipment



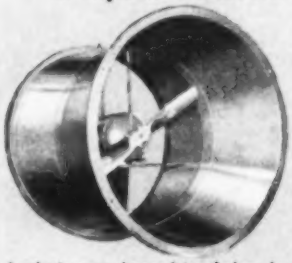
If you're troubled by cramped dry-kiln capacity, remember this: The production rate of many present-day kilns can be increased by considerable percentages — sometimes doubled — by the proper installation of better air-moving and air-heating equipment. Even some brand-new kilns could have been equipped to produce ten, twenty—even thirty—percent more processed lumber.

How do we know? We've done it! In our own kilns, which have been operating since the turn of the century, and in the field.

Hartzell fans and heater cores are built to work as an effective team; to move air positively and economically, and to transmit heat at a maximum rate. Hartzell installation diagrams show how to install them properly.

Few kilns are precisely alike. Hartzell combines elements, specifies materials and advises installation to get the maximum from the one kiln in question. Send us data on your disappointing kilns. We'll suggest how to improve, without obligation.

. . . and this *reversible* fan is tops for uniform drying



Case-hardening or incomplete drying (sometimes both in the same kiln) seem to occur in many kilns. So we did what "couldn't be done" — designed this fan, which moves air efficiently in either direction. It can be manually reversed, or equipped to reverse automatically at pre-determined intervals. See what that means? Stops the tendency to case-harden at one point in a kiln, dry incompletely at another. Send for facts.

CLIP AND MAIL THIS COUPON NOW FOR INFORMATION

HARTZELL PROPELLER FAN CO.
Div. of Castle Hills Corp.
PIQUA DEPT. E OHIO

Name
Company
Street & No.
City & State

PROPELLER-TYPE FANS AND BLOWERS—ROOF VENTILATORS—UNIT HEATERS • ENGINEERING OFFICES IN PRINCIPAL CITIES